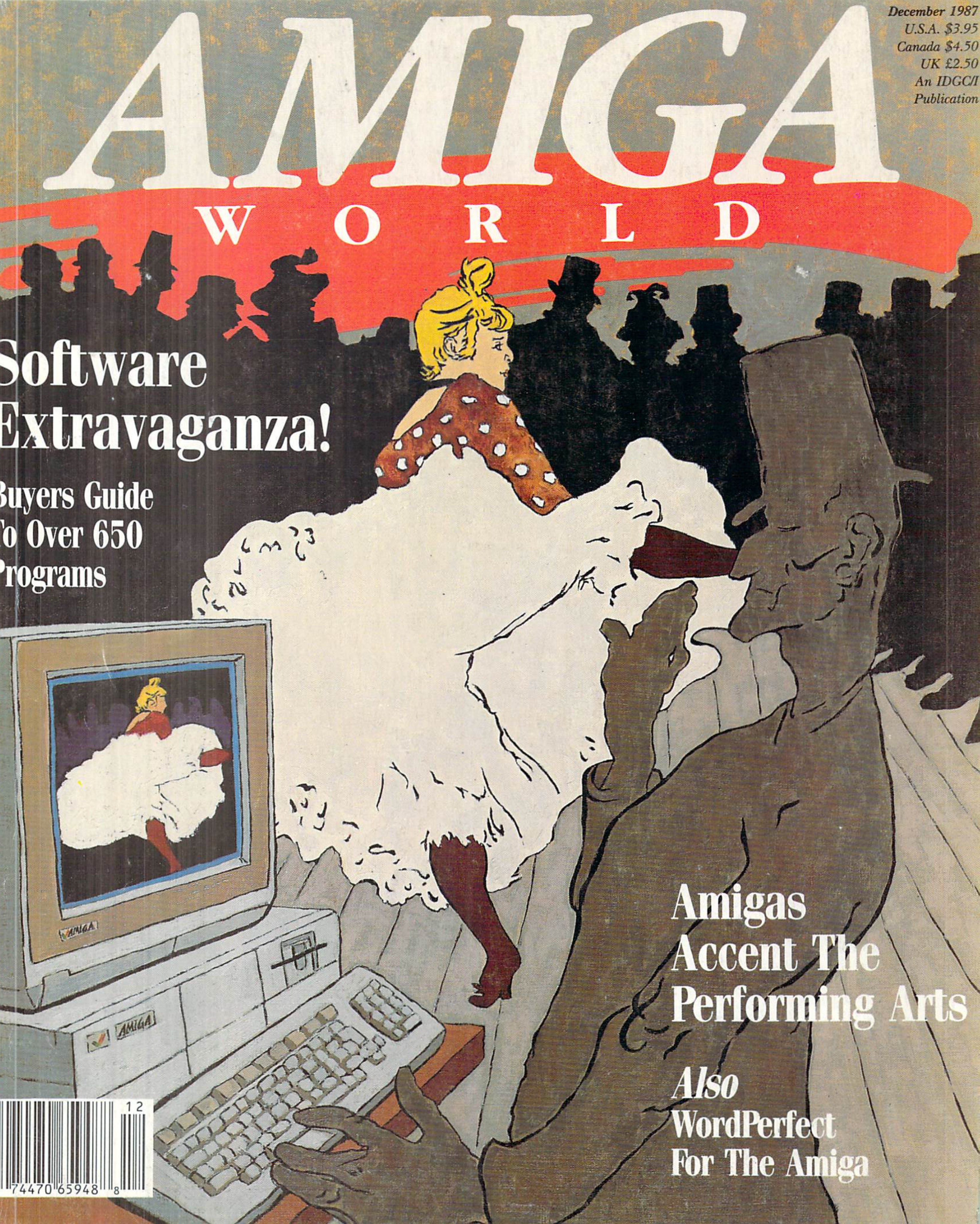
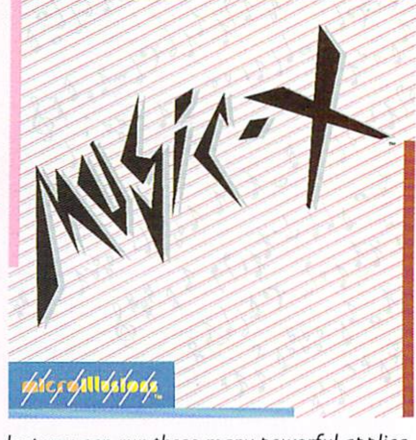


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MUSIC X SOFTWARE, *like a fine instrument is crafted from the heart. It is more than an excellent tool, it is also a work of art.*

COMMITMENT: *We have committed ourselves to pushing ahead state of the art in professional music software, enabling you to open new worlds of creativity at a cost, both in hardware and software, that is well within the budget of any serious musician.*

NO COMPROMISES *or shortcuts have been tolerated as we designed this product. The master clock is accurate to 1 millisecond with a resolution of 192 clocks per quarter note. Sequences and library data can be any length, limited only by available memory — if you want, you can dump a 100K or larger sample into a library entry!*

KEYBOARD MAPPING *features allow almost any function of the sequencer to be controlled from a MIDI keyboard, footpedal, or other MIDI device. This includes starting/stopping the sequencer, initiating sequences, and even changing the key map itself!*

REAL TIME: *The system supports real-time recording of systems exclusive data, as well as full graphic-oriented and event-oriented editing of sequences. You can even record while in edit mode and watch notes appear on your edit display as you play them!*

LIBRARIAN: *A configurable librarian is included with the program. You can teach the librarian how to communicate with any MIDI instrument which outputs system exclusive data.*

EDITING: *An impressive battery of editing features will be supported. In fact, new editing features are being added daily as we interact with our network of working, professional musicians whose input has greatly contributed to the quality of this program.*

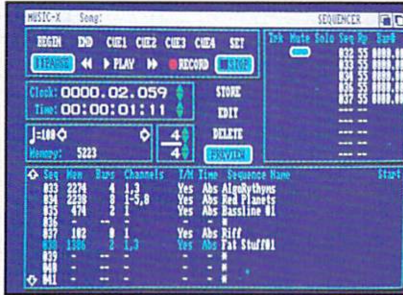
COMMITMENT: *Our commitment to music production does not stop here. A future product, Patch Editor Construction Kit, will allow you to create graphical patch editors for virtually any synthesizer you may own. Some technical knowledge will be required, but since patch editors, once created, can be traded between users, you should have no problem getting an editor for your needs.*

THE POWER: *Part of the power of Music-X comes from the computer it was created for: The Amiga, one of the most powerful and inexpensive personal computers available. At last you can run these many powerful applications in an environment that is a pleasure rather than a chore to use!*

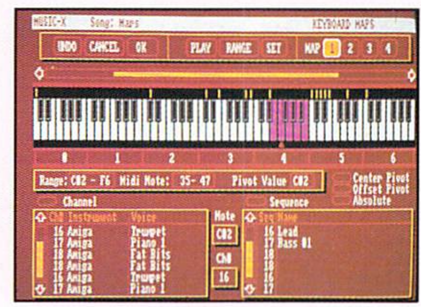
MICRO MIDI: *Although Music-X will work with any of the many MIDI interfaces for the Amiga, we offer our own MIDI interface which we feel is a cut above. It features six outputs (each output switchable as OUT, THRU or OFF), two switch-selectable inputs, a channel loading indicator, and an external clock output (sync/start stop) for synchronizing older, non-MIDI drum machines, and a serial pass-thru!*

MICRO SMPTE: *This complete SMPTE Reader will allow Music-X to synchronize with video or audio tape decks. It connects to the Amiga parallel interface and includes a pass-thru so as not to interfere with printer operation. Our Micro SMPTE is compatible with all Amiga models (A500/A1000/A2000).*

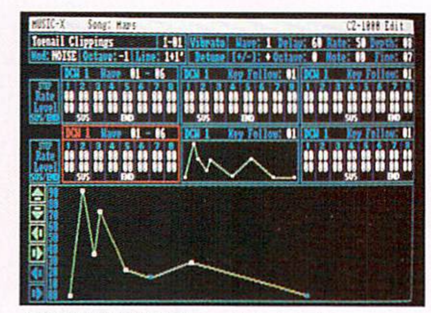
PHOTON VIDEO: *Photon Video is a complete, integrated video animation system. It includes facilities for both 2-D and 3-D animation, as well as automatic tape transport control and real time playback of rendered images. Our 3-D rendering module supports variable light sources, shadows, transparency, and reflections in a 3-D environment. Other modules include Cel Animator, Object Editor and Transport Controller with SMPTE support.*



SEQUENCER PAGE: *Tape transport-type controls allow manipulation of up to 250 sequences; each contain 16 MIDI channels worth of data.*



KEYMAP EDITOR PAGE: *Create keymaps by dragging the mouse over a selected area of the keyboard. The highlighted region can then be redefined in terms of real-time behavior.*



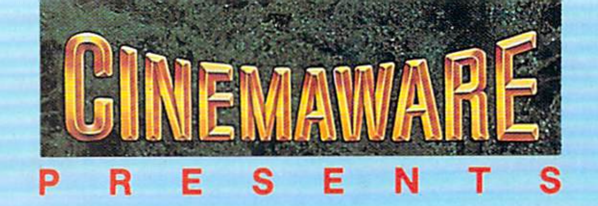
PATCH EDITOR: *A sample patch editor (CZ-1000) of the type that will be included with the product.*





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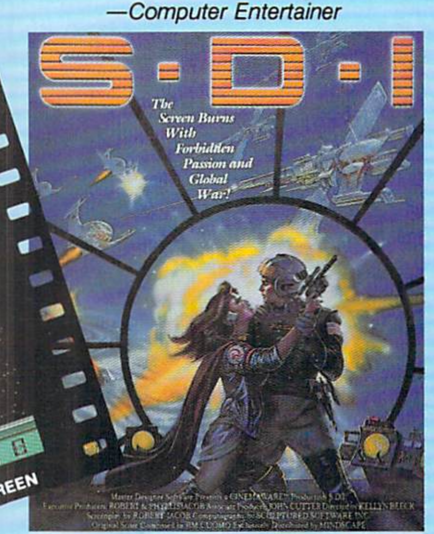
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—*Computer Gaming World, 1987*

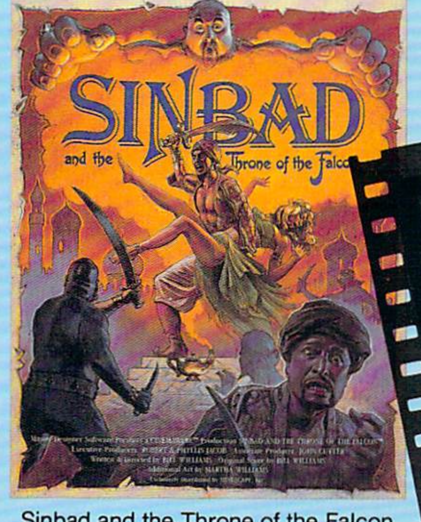
Stunning graphics, life-like animation, and a good soundtrack add to the feeling of a movie-like story...
—*Computer Entertainer*



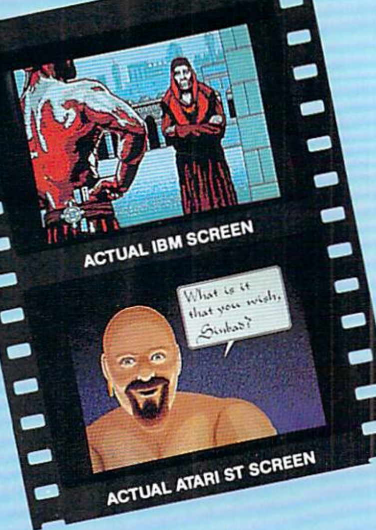
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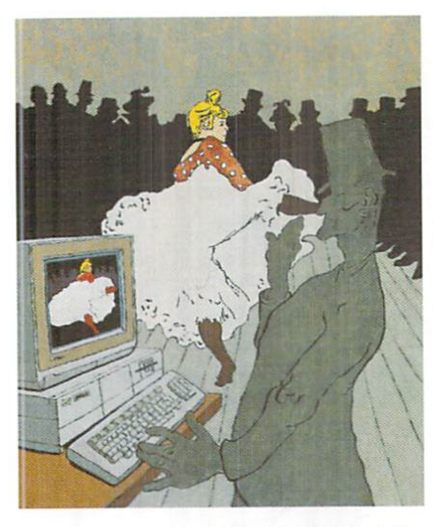
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COVER ILLUSTRATION BY ROGER GOODE

After strenuous browsing through our "Buyer's Guide To End All Buyer's Guides" (665 software packages), and getting lots of good ideas and saving lots of money, we thought you might like some lighter diversion. Toulouse Lautrec (cover) has just stocked up on some good graphics programs himself and is ready to join you as we dim the house lights and bring up the curtain on . . . "Amigas in the Performing Arts."

December 1987

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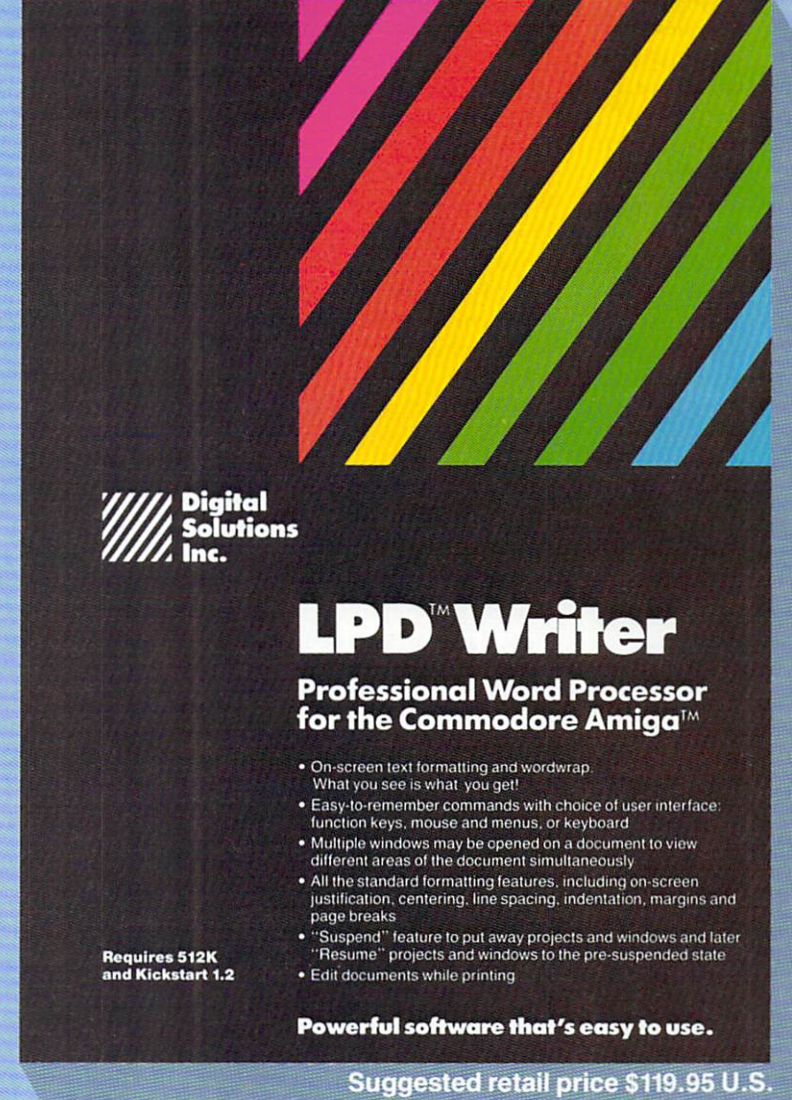
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Zeitgeist

Yes, we do have a Christmas Buyer's Guide . . .

despite those Frenchwomen on the cover.

By Guy Wright

EVERYONE HERE at *Amiga-World* uses Amigas every day. For word processing, mainly. Articles are sent via modem to our typesetting department. Screen shots and artwork are done on Amigas. Budgets are put together on an Amiga. Files of software, hardware, manufacturers, articles and authors are all kept on Amigas. And, yes, we even play games on the Amiga. Everyone on staff has a slightly different configuration of memory, drives, modems, printers, digitizers, monitors, sound systems, etc. We each have our favorite programs for getting work done and for goofing off. There are thousands of ways to put together an Amiga system by combining different hardware and software.

I think that everyone who owns an Amiga (or is thinking about buying one) is also thinking about buying new software, hardware and peripherals. Saving up for a new printer, a game or two, the newest paint program, whatever. It seems like there is a lot of Amiga stuff out there, but it is hard to find everything unless you know exactly what you are looking for. Not every manufacturer advertises their products in magazines (it is an expensive undertaking), and not every product gets reviewed. Retail stores can't stock copies of everything, and even if you belong to the largest user group in the world, you still won't get a chance to see everything that is available for the Amiga. So I think it's safe to assume that there are always going to be some products that you won't know about. Well, almost. Here is where *AmigaWorld* steps in to save the day. (Bugles, cavalry, guns blazing, etc.) The annual, 1987 *AmigaWorld* Software Buyers Guide! Yes, you fortunate Amigoid, you have in your paws, at this very instant, the issue that has it all. Everything, all, tout! If it runs on the Amiga (or if it is going to be running on the Amiga), then it is listed in these remarkably pliable, paper-thin sheets of white iridium upon which we print *Amiga-World* (and you thought that reading magazines was a safe activity).

I suppose that we all ought to thank Linda Barrett, our Review Editor, for putting the guide together. Thank you Linda. And if your product didn't get mentioned, or we listed your number incorrectly so that all your orders are being routed to the Pizza Barn, or we listed something at $14.97 when it is actually $149.97, or we put Bongo's Zoid Basher under games when it is really an integrated accounting package, then of course it was Linda's fault and you should talk to her.

1988 is just pulling a chair up to the table while '87 cashes in its winnings. We have all sorts of wonderful things coming up in this next year. Things that will change the way people think about their existence. Things that will hem, pleat and iron the fabric of reality. Words put together in orders never before duplicated throughout the history of human communication. Sentences, phrases, paragraphs and punctuation all somehow related to the Amiga. Now, if we can just think of some wonderful themes to base all these words upon. . . . Or, you could write to me and tell me just what you would do if you were the editor of *AmigaWorld*.

We do have a few things planned for 1988. We will be covering desktop publishing—what it is, what you need to do, what things and which packages offer which features. We will be doing a comparative review of printers. We will cover video and music and games and databases and AmigaDOS commands and programming in Amiga Basic and spreadsheets and word processors and coprocessors and CAD/CAM/CAE and a few other things here and there. This isn't a complete list of topics, but if there is something in particular that you would like to see covered, then by all means, let us know so that we can get someone working on it. So far, just about everyone that we talk to has said that they like *AmigaWorld* pretty much the way it is. General opinion is that, while the editors seem a bit flaky, and every now and then an article slips in that perhaps should have been left unpublished, we have been doing a good job. If you think we are doing a good job all on our own, without your valuable input, then don't write. We will take that as a vote (in absentia) of confidence.

One last thing. If you were wondering about the cover, here's the story. Since the Software Buyers Guide is so large, we didn't have a lot of space left over for dozens of other articles. Of the few that we did manage to squeeze into this issue, Amigas in the Performing Arts (for some inexplicable reason) caught the attention of our Art Director. That was the story that lent itself to a good visual presentation.

Now, we could have done a buyers guide cover. . .you know, thousands of software packages, exploding disks, etc. Or we could have gone with the traditional Christmas cover—some banal shot of an irritatingly healthy, wide awake, all-American family. . .Mom, Dad, little Jimmy and sister Sue, all beaming away as they carefully unwrap the presents under a painfully perfect tree, to find a ("Gasp! What a wonderful present!") new Amiga 500 and scads of new software to be home productive and educational with. After all, most of the other average computer magazines out there will be doing some vapid variation on that theme this December. But not *Amiga-World*. No, we thought that an imitation of a painting done by a short Frenchman who drank a lot of absinthe and hung around bordellos was more appropriate for the holidays.

Well, I hope you get what you want this year. You can send my presents here. Happy, merry. . .whatever.■

Repartee



Proud Owner

I am the proud owner of an Amiga 500 and love it. If any of you are thinking of buying one, let me share some of my impressions with you. The advantages of the 500 over the 1000 are rather obvious: extra memory, larger keyboard, and, of course, price. But, there are a few problems I have with it.

First, the external disk drive is made with a phenomenally short cord, limiting placement of the drive. Second, the on/off switch is not located on the 500 itself, but on the heavy, bulky, external power supply, which you really want to put on the floor but can't because you don't want to stoop over every time you turn on/off your computer. Third, if you're squeamish about electronics, you may balk at installing your A501 memory expansion; installation involves aligning the board with the dozens of pins that it plugs into, and pressing it into place.

Finally, for some reason, Commodore decided to make the power LED red, and the disk access LED green—very backwards to my way of thinking, especially since the external disk lights up red every time it's accessed.

Nonetheless, all these very minor problems are worth putting up with to have Kickstart in ROM, and the extra memory, and the larger keyboard, etc.

Bill Randolph
San Antonio, TX

Communicating with Video

I use the Amiga 1000 at WAVE Incorporated in Worcester, Massachusetts. WAVE is a full-service video communications company that specializes in designing, developing and producing videos for business.

As the electronic graphic designer, I have a chance to produce high-quality graphics, using the A1000 combined with high-tech video equipment.

The Amiga's RGB output allows me to maintain the component signal of the editing system. The implementation of the Amiga was difficult because of a slightly different technology, but it has proven to be worth the trouble.

The graphics we have created with the Amiga have been simple: bar charts with dropshadow and flowcharts (developed from DeluxePaint II in hi-res mode), but combined with a Laird 1500 character generator and other switcher effects, the possibilities, as they say. . . .The troubles I've had with the Amiga have been relatively minor. Other problems come, we suspect, from the Genlock.

Altogether, the Amiga 1000 is quite a system (quick and easy to produce graphics, good color control) for any video production facility that can't afford a Quantel Paintbox.

Thomas M. Tremblay
Worcester, MA

Amiga Credit Card

A couple of weeks ago I was looking at a brochure for the Apple IIGS, and I mused that the only thing the IIGS has over the Amiga is the Apple credit card.

Although I don't own an Amiga yet, I'm already a big fan of your magazine. Looking through one of your issues, I almost choked when I saw in the fine print of an ad a reference to the Amiga credit card. I had never heard of such an item, neither in the pages of AmigaWorld *nor from talking to the sales people at the local computer store. I would like to know if such a thing really exists.*

Justin Anderson

Yes, there really is an Amiga credit card. You can apply for one through an authorized Amiga dealer.

—Editors

CAD Concerns

I read with considerable interest the article entitled "Amiga CAD" by Louis R. Wallace in the May/June '87 issue of AmigaWorld, *in which he discusses Dynamic-CAD from MicroIllusions. I purchased Dynamic-CAD shortly after reading the article. After nearly two months of experience with the software, I would like to add my analysis of the program.*

My version of the program is release 2.3, dated Feb. 1987. Numerous glitches in the software have caused frustration, lost work and a complete lack of confidence in the system. These glitches generally appear as inconsistencies in the operation of the program and can generally be corrected by a system reset (warm boot) but quite often at the expense of losing all data since the last save. At seemingly regular intervals, the system will absolutely refuse to display alphas, arcs and circles and/or symbols. A save to disk and re-boot will often (though not always) correct the situation. A similar, but opposite problem often occurs with the plotted output and results in junk lines, not visible on the screen, being output to the plotter. Visits to the Guru are a common occurrence.

Mr. Wallace indicated that Dynamic-CAD is a powerful drafting package, especially for electrical engineering applications. I cannot recommend Dynamic-CAD for any application, especially considering the high price of the package.

George R. Mckelvey
Santa Maria, CA

The Next Theme

I would very much like to see an issue of AmigaWorld *that focuses on desktop publishing.*

You could discuss how hot this topic is and review the publishing software available for the Amiga, such as Publisher 1000, City Desk, VizaWrite, ProWrite, Pagesetter, Professional Page and Shakespeare. You could also mention or review other products, such as laser printers, font disks, clip art disks, etc.

Desktop publishing is the hottest computing topic today, and it's something that the Amiga computers can excel at (due to their graphics capabilities). Therefore, I hope you will have such a theme issue soon—maybe the January '88 issue?

Steven J. Janik
South Hadley, MA

We aim to please. Stay tuned for our January '88 issue for a feature story on desktop publishing. Any other suggestions?

—Editors

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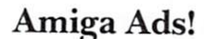
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Notepad



Amiga Ads!

If you didn't blink during the final few weeks of last summer, you may have noticed some advertising for the Amiga 500 and 2000. In mid-August, Commodore outlined to its dealers a modest ad campaign designed to give the Amiga a higher profile than it currently enjoys. The schedule called for some spot TV in September and October, a large *USA Today* ad in late September or early October, ads in the major newsweeklies in November, ads in some special-interest monthlies (like *Omni*) in November and December, and ads in some Commodore-specific magazines. Although not as ambitious as most Amiga dealers and developers would have liked, the campaign will certainly have a positive effect upon Amiga sales. Also included in the information sent to dealers was the announcement that a new Amiga logo was forthcoming.

Bundles of Joy

As last summer waned, Commodore began to push the Amiga 500 towards one of the machine's biggest target audiences: owners of Commodore C-64 and C-128 computers. Commodore compiled a list of over 170,000 C-64/128 user group members and mailed them a limited-time offer designed to get them to upgrade to the Amiga 500. Through a flashy, four-color brochure, Commodore offered two different software bundles to people who buy the A500 at the list price of $699. The first bundle, costing $99, consisted of DeluxePaint II, PageSetter, Aegis Animator, Textcraft Plus, Marble Madness and the 500XJ Joystick. The second offer, with a $199 price tag, included WordPerfect, PageSetter Deluxe, Superbase Personal, MaxiPlan 500, Diga!, DeluxeVideo and CLIMate.

The offer is expected to entice thousands of C-64/128 owners into the Amiga fold, but it has not met with universal approval in the Amiga community. Software developers who were not included in the bundles complained that they were being shut out from selling to these potential new users. As one developer told *AmigaWorld*, "Why didn't they [Commodore] simply cut the price of the machine and give us all a fair chance to sell software? How can I compete against free software?" Some dealers also expressed reservations about the plan, fearing that it would cut into their follow-up sales of software. A dealer in San Diego scoffed at that idea, however, saying "Anything that moves hardware is good for us. Besides, we already take a beating (on software sales) from the mail-order guys."

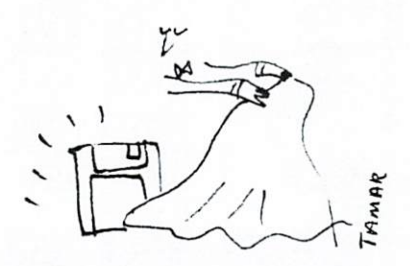
Included in the offer was a hotline (not toll free) for people who wanted more information about the offer and a plug for Commodore's Quick Approval Credit Card Program. The special offer was scheduled to end on October 31, 1987.

Test Fly the Amiga 500

Commodore is running a special promotion through the end of 1987 that allows people to see just what an Amiga 500 can do. Called the Amiga 500 Video Test Flight, the program lets people borrow a special video tape from their local dealer. The tape contains a 15-minute "knock their socks off" demo of the A500 and much of the third-party software available for the machine.

To get the tape, interested people should call 1-800/87-AMIGA. Commodore will take your name and address and get a letter out the next day listing participating dealers in your area and including a voucher for the loan of the tape. (Some dealers may require a deposit.)

Commodore thinks that when people see what the Amiga 500 can do, they won't bother with any other home computer. Commodore is probably right.



Random Access

All this marketing activity from Commodore coincided with the resignation of long-time Commodore marketing head Clive Smith. Clive was the last of the management team that was instrumental in Commodore's acquisition of the Amiga. He has been replaced by Julie Bauer, a veteran Commodore hand who also heads public relations and acts as publisher for *Commodore* magazine.

Byte by Byte has discontinued their Pal and Pal Jr expansion products for the Amiga 1000. The Pal expansion box was apparently done in by the Amiga 2000 while the Pal Jr, although exhibiting the fastest performance of any A1000 hard drive, also carried the highest price. According to sources inside Commodore, the Amiga 2000 Hard Disk Controller will ship with a special version of AmigaDOS that will greatly increase the speed of hard-disk access.■



Hors d'oeuvres

Don't keep a good idea to yourself. Send your hints, tips, techniques and random musings to AmigaWorld *Hors d'oeuvres, 80 Elm St., Peterborough, NH 03458.*

Deleting Printers in 1.2

This is a workup of the printer devices deleting code on page 11 of the May/June '87 issue of *AmigaWorld.* I think the code used by the gentleman from Sweden was AmigaDOS 1.1. I tried it and got lost in the land of cd's, dr's and dev's until I realized I was in 1.2. Here's how I did it and how it looks:

```
cd sys:devs
cd printers
dir       <this produces a list of printers>
copy generic to sys:t <generic is printer
  driver to save>
delete sys:devs/printers all
  <deletes all printer drivers>
copy sys:t/generic to sys:devs/printers
  <restores generic printer driver>
cd sys:devs/printers
dir       <check to make sure it's there>
```

Make sure that you are using a copy of the original disk in case you ever get a new printer and need to use a different printer driver.

Frederic Ahrens
Cambridge, WI

Portable Digitizing

Packing up my Amiga to digitize an object that is too big to put on my stand is a bummer. Here is an easier way. Instead of dragging your Amiga all over the place, just pack up your black-and-white video camera and VCR. With your camera on a good steady tripod, videotape about a minute or two of the object through the red filter, then through the green filter, and finally through the blue filter (it must be a nonmoving object). Note the counter readings on the VCR for later reference. When you are done, pack up everything and head on home.

With your Amiga booted up with Digi-View, attach the composite video output of your VCR to the input of Digi-View (RF output won't work). Start the VCR rolling on the red-filtered video. Give the VCR about 15 seconds to stabilize and then activate the red digitizing on your Amiga. Do the same with the green and blue filtered images. You are now ready to select 32 or 4,096 colors.

The results are not quite as good as digitizing directly from the camera because most VCRs don't have as high a resolution as a black-and-white camera. Even so, the results are impressive.

Bob Foster
Bishop, GA

Dongle Trouble

For those Amiga owners who like flying and playing golf, you should be aware of a conflict between Leader Board's dongle and Flight Simulator II. I have both programs and most of the time I just leave the dongle for Leader Board in mouse port two (it's the only dongle I own). I found out the hard way that even though Flight Simulator II doesn't use mouse port two, the program still gets upset if the dongle is left in (elevator position indicator is stuck in the maximum "nose up" position, and cannot be lowered). I haven't run into problems with other programs yet, but it is probably a good idea to remove the dongle anyway.

Now, if I can just think of a way to keep from losing it between rounds of golf.

David Britt
Madison, MS

Tracing Tips

For Amiga users who don't yet have a digitizer or graphics tablet with tracing capabilities, one of my most successful graphics techniques is to take a slide of a subject, put it in a slide projector and project the image on the monitor. This does not produce a lot of screen glare if you use an off-white or gray screen and it allows you to make fairly precise tracings. Be sure to turn the projector off from time to time to save bulb life.

If you are working from a print, you can place the negative into a slide mount and project it as well.

Another technique is to use a sheet of clear plastic acetate and trace an image on it. Make sure you purchase acetate that has been specially prepared for drawing and painting on. Take your tracing and tape it to your monitor screen and trace the picture. You can get about the same results with this procedure as with using a slide projector.

George Bailey
Deleon Springs, FL

DIR Tips

Here are a few tips that might be helpful while using the DIR command:

1. When using the DIR command, with option I (or AI), the only valid response to the ? prompt (that I have found) is a carriage return or the word "delete." As always, a directory cannot be deleted unless it is empty.

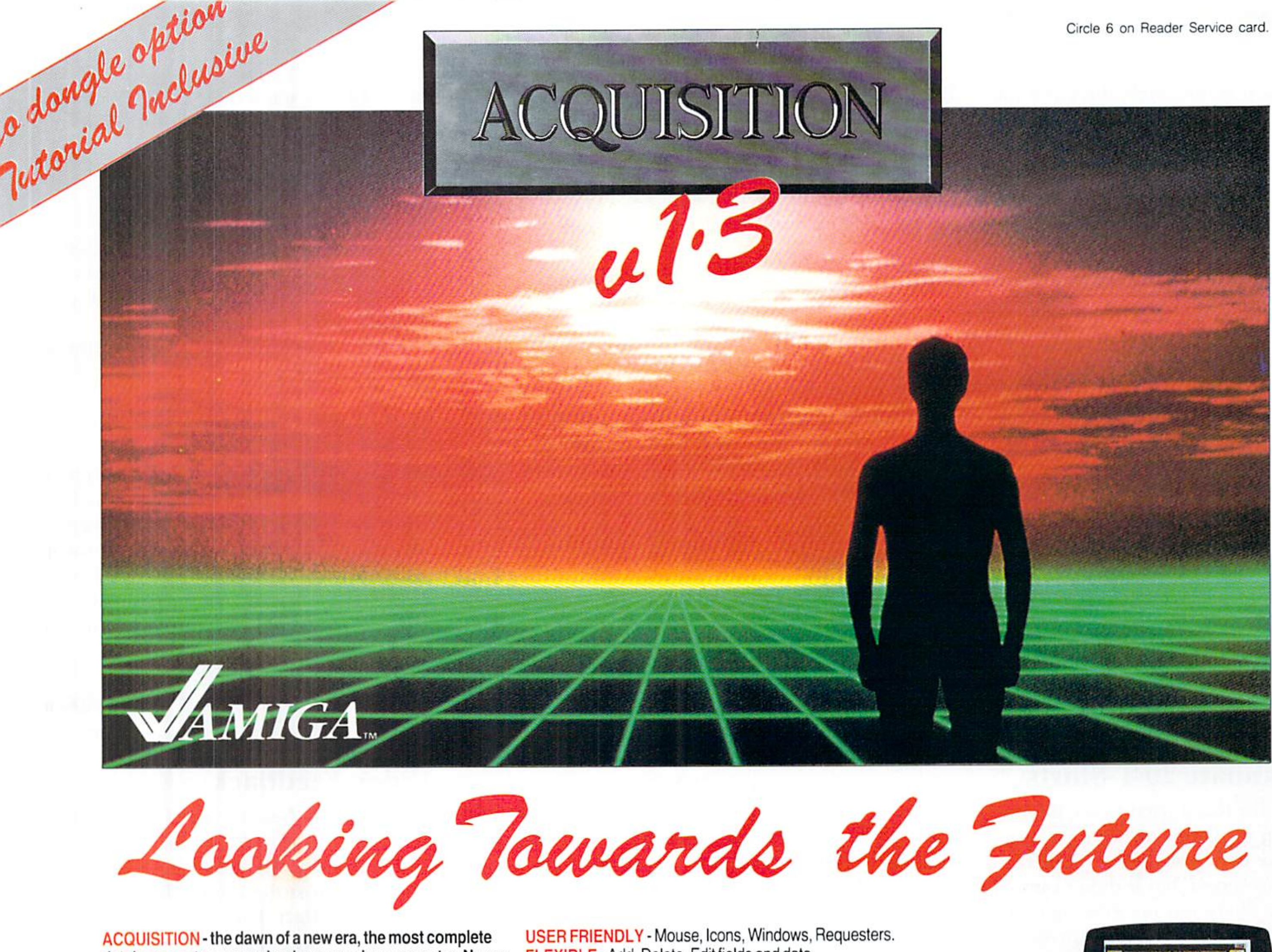
2. I believe I have found an undocumented feature of the DIR command that has helped me on occasion. Typing DIR OPT d will list only the subdirectories on the specified drive. This is useful for finding directories on cluttered disks.

3. If you want to copy several disks, you might:

```
copy system/diskcopy to ram:
assign x: ram:diskcopy
```

Then you could simply type x: df0: to df1: to copy your disk. The problem is that you cannot delete ram:diskcopy now, because as far as AmigaDOS is concerned, it is "in use." This can be quite aggravating if you are accustomed to having your Amiga do ►

Circle 6 on Reader Service card.



Looking Towards the Future

ACQUISITION - the dawn of a new era, the most complete database system conceived on any microcomputer. Never before has such power and versatility been combined in such an easy to use framework. Acquisition 1.3 contains over 200 enhancements suggested by the users of version 1.2!

LANGUAGE: Acom language allows the full exploitation of the Amiga's and Acquisition's facilities. With over 200 commands, the structure of Acom is very similar to basic and allows access to all main database functions and the Amigas special chip set (blitter, sound).

RELATIONAL: Truly relational - information can be automatically passed between databases, allowing Acquisition to keep track and update related information across many files.

MULTI-ACCESS: Multiple databases may be opened and used simultaneously on screen.

REPORTING: The full featured report generator allows fully customized reports, letters, tables, documents, etc., using data selected from many database files. Powerful report formatting commands are included.

GRAPHICS: Customized graphics 'backdrops' allow the user to present data in a very friendly way. Any I.F.F. format picture may be used as a background to your data. All database screens may be loaded and modified in paint packages like Deluxe Paint (tm).

VARIABLE LENGTH FIELDS: All Acquisition's fields are dynamic in size, and will expand automatically to accept as much data (sound, graphics, documents) as is entered. All fields may be moved and re-sized at any time.

TEXT EDITOR: The powerful text editor is available in EVERY field. Data can be CUT, COPIED and PASTED between fields, databases and other software packages (Scribble, Analyze) using the clipboard device.

APPLICATIONS GENERATOR: Complex applications can be set up by virtue of Acquisition's user friendly versatility: Invoicing, Mailshot, Spreadsheet, Stock control, Personal records, Real Estate, Security, Travel agents, Membership subscriptions, Graphic artists, Financial modelling, and Many, Many more.

USER FRIENDLY - Mouse, Icons, Windows, Requesters.
FLEXIBLE - Add, Delete, Edit fields and data.
GRAPHICAL - Backdrops, Pictures, Icons, Graphs.
SOUNDS - Speech, Sampled sound.
POWERFUL - Calculated fields, Acom Programs attached to icons.
PROGRAMMABLE - Language has over 200 commands.
RELATIONAL - Links between files 1 to N; N to M; unique/non.
VERY FAST - Even faster than popular memory based systems.
ADAPTABLE - Configurable for large memory and hard disk.
TRUSTING - NO COPY PROTECTION option.
TUTORIAL - 200 page novice guide available.
EXAMPLES - Comprehensive examples disk supplied.
COMPLETE - 350 page reference manual supplied.
IMPRESSIVE - Language allows animation of graphics.
PASSWORD - Password protection through the language.

SPECIFICATION
Maximum field size... 10 Megabytes
Maximum no. of fields to a record... 10,000,000
Maximum no. of records to a file... 100,000,000
Maximum size of a file... 1 Gigabyte
Maximum level of sorts... 65,000
Maximum level of selection criteria... 65,000
Maximum number of files in a system... unlimited
Maximum no. of paths attached to one file... unlimited
Data types: alpha/numeric, date, time, logical
Field formats: standard IFF picture, sound.
Database language functions... over 200

System requirements: Amiga with at least 512K RAM and 2 floppy disk drives or a hard disk.

1.2 users phone now for update details

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what it is told. Well, there is a way to UNASSIGN x: so that it can be deleted. All you have to do is type assign x:. Now you can delete ram:diskcopy.

R. D. (Tom) Thomas
Millington, TN

More DIR Tips

If you need to delete a number of files on a disk, you might try using the DIR Opt I command from the CLI. If you want further instructions press the ? key and return. You will get the following:

B = BACK/S,DEL = DELETE/S,E = ENTER/
S,Q = QUIT/S

Use E to enter a Subdirectory, B to get back to the current directory and Q to quit altogether. If you want to delete a file, just type DEL and press return. I also found another option not mentioned anywhere: If you press T it types the file to the screen.

Lance Davis
Yuma, AZ

Okimate 20 T-Shirts

Just for fun, I tried to see if color pictures from my Okimate 20 would iron on to a white cotton shirt. They did! The picture was reversed, but it didn't cause a problem since there was no lettering on the picture. What was even more surprising was that those annoying overlaying lines were less noticeable and the glaze was gone. All you have to do is print a picture using the color or black ribbon and then iron it on to a white cotton shirt. The shirt and paper will look a bit faded, but I'm sure that playing around with different papers could improve the technique.

Sean Flanigan
Hixson, TN

Editor's note: If you use DPaint and want text on the shirt to transfer correctly, just take your picture, make it a brush, and flip the brush before printing out on your Okimate 20. The text will be reversed on the paper but fine on the shirt.

Digitizing Moving or Large Objects

Here is another method for digitizing images that are too big to fit on a table, or for capturing something that won't sit still. Simply take a photograph of the object. Have the photo developed as a slide, project the slide on a wall or screen and point your black-and-white camera (for best results use a steady tripod) for digitizing. This trick also eliminates those "hot spots" that you get when trying to digitize a photograph lying on the Digi-View camera table if your lights aren't set perfectly.

Roger Goode
Hillsboro, NH

Startup Fiddling

I do a lot of fiddling with my Startup-sequence file, so much so that I've gotten tired of typing ED S/Startup-sequence all the time. I made it easier by renaming S/Startup-sequence to S/SS and creating a new S/Startup-sequence with one line:

EXECUTE :S/SS

Now it's as easy as ED, TYPE or EXECUTE S/SS!

Adam Levin
Piermont, NY

Even Better Video

After conferring with several associates, I decided to try a TV-VCR Signal overload attenuator. It is available at Radio Shack (part #15-578) for a few dollars. It can be hooked in line between the composite output of the Amiga and your VCR video input or monitor, using 75 ohm coax cable and an RCA-to-cable TV connector adapter.

Since the attenuator is adjustable from 0–20 dB, you can adjust the color levels for the best results.

Paul Kyle
Rochester, NH

EDIT to Edit ED

A problem I've found with using ED rather than EDIT is that ED does not allow one to enter control code sequences—sequences that I like to enter in Execute files for special manipulation of the screen, such as ESC[33m and ESC[0m to alternately change font color to red then back (where ESC is actually the ASCII ESC code). But EDIT does have one very nice feature: being able to edit a file with a pre-defined command file. So I just made up a command file that contained the commands to look for a simple, unique text sequence I entered previously using ED when I made the original file, then change those text characters to the wanted ASCII control sequence.

The actual steps I used are:

1. Make up the desired file but using [[where I really wanted the ESC[characters.

2. Using EDIT, make a "Niffty" file with these nine characters:

GE/[[/@[/

Note the @ used above is really the ASCII ESC character. These commands mean to Globally Exchange all occurrences of [[with the new characters @[(really ESC[).

3. In CLI, use this command line (using your actual file names):

EDIT Oldfile TO Newfile WITH Niffty

Off goes EDIT to work on Oldfile, using the commands in Niffty to make Newfile. In a few seconds all is done. What is also great is the command file still exists to be reused again for any other files I want to identically change. And in using seperate Oldfile and Newfile names (they could be the same if you wish), you still have Oldfile around to reuse if things don't work as planned.

Charles Thomka
Torrance, CA

Video Feedback

Everyone with Genlock and Digi-View has probably by now attached their black-and-white camera to Genlock's input and made UFOs fly across the room. There is a very interesting effect that can be achieved with this setup. Using a paint program, put something like text on the screen, then point the Digi-View camera Genlock setup directly at the monitor. By adjusting the distance, alignment, focus and tilt of the camera you can get some great special effects.

Steven Chapman
Rocky Point, NY

Sorted Directories

If you need a sorted directory, but with date, length and protection code, just type:

list df0: to ram:temp
sort ram:temp ram:temp1

Now you can "type" it to the screen. If you want a hardcopy, use the following:

list df0: to ram:temp
sort ram:temp prt:

When you are finished, just delete the temp files.

Christof Berger
Oensingen, Switzerland■





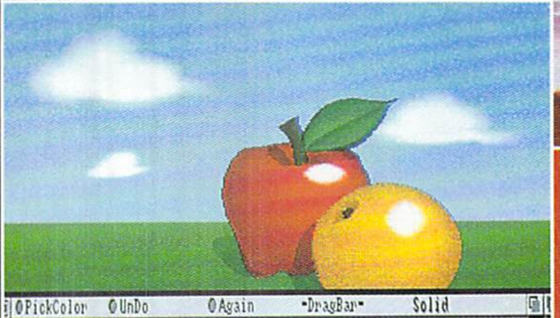
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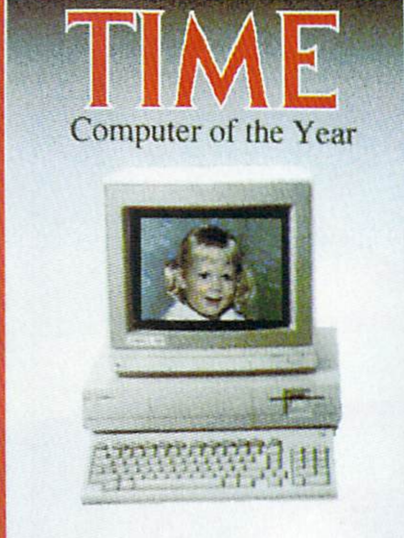
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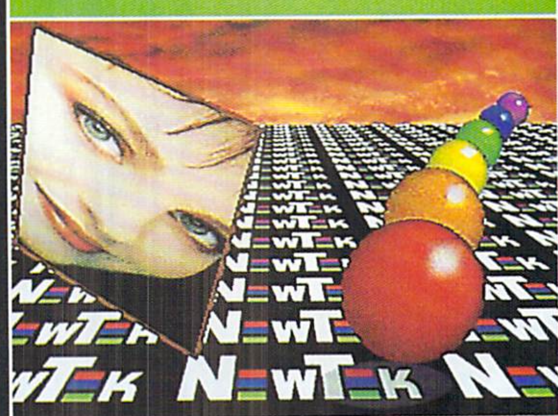
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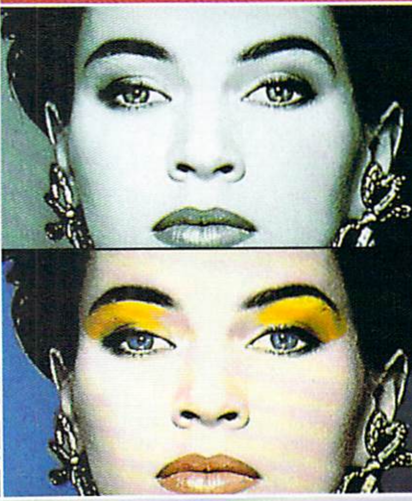














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And The
Word
Was Made
Perfect

And The Word Was Made Perfect

A chart-busting "biggie" bursts on the local scene and word processing on your Amiga will never be the same.

By Ted Salamone

Unlike most Olympians in Greek mythology, who had to start out as tedious cloud-wetting little gods (like us ordinary mortals), Athena sprang full blown from the head of Zeus and all set to boogie—intellectually speaking, that is. A similar analogy exists in WordPerfect's arrival on the Amiga scene. No sniveling little word processing program in need of endless updates (like a stream of dirty diapers) before it reaches maturity, WordPerfect springs from its MS-DOS roots a thoroughly-proven, full-featured word processing dynamo containing every bell and whistle imaginable. (See sidebar for a complete list of WordPerfect features.)

For some Amiga users, the introduction of WordPerfect will be the single most important product release of this or any other year. Compared to it, there are no other Amiga word processors. It handles everything from one-page memos to novel-sized manuscripts in an easy-to-use fashion that is startlingly simple for such a complex, feature-laden program. Although pricier than its "competition," it may be the only word processor you will ever need.

Not Just Another Port

So, as an Amiga aficionado you're skeptical of something based on a program for a system that is the antithesis of your kind of machine. Nevertheless, don't hold its lineage against WordPerfect; it has been thoroughly Amiga-ized. Besides the full-bore, pull-down menu interface with rodent control, all keyboard and function key commands remain intact. For crossover users familiar with the IBM version, the transition is nearly transparent—a few stick-on decals redefine the numeric keypad as additional cursor control keys, à la IBM's keyboard. For new users, the choice of keyboard or mouse control is spelled "complete flexibility."

WordPerfect provides two templates: one to explain commands for Amiga 2000 owners, another for Amiga 500 and 1000 users. A brief look quickly identifies the color-coded control and function key combinations that ►

ILLUSTRATED BY ROWENA SMITH

drive WordPerfect. Black commands use F-keys only, green signifies the SHIFT key in conjunction with an F-key, blue means ALT with F-keys and red means CTRL with the function (F1–F10) keys. Although this structure bypasses the more familiar keystroke combinations using the left- and right-Amiga keys (which offer keyboard alternatives to pull-down menu commands), it is just as simple and inherently more powerful because there are more possibilities. If you want to avoid this setup altogether, just point and click with the mouse.

Besides the templates and the tutorial disk, WordPerfect provides a separate quick reference card and a truly comprehensive manual. No stone is left unturned.

There are four disks: the program, printer tables (printer drivers), a tutorial and a spelling checker/thesaurus. Hard-disk installation is a snap: the manual provides instructions and the disks are not copy protected. No, there isn't even a dongle.

Although the term of the warranty is the industry-standard 90 days, WordPerfect's guarantees are more comprehensive than most. For a program of this nature, consumer protection is important—and WordPerfect comes through. More than the media is covered: ". . . the program will perform in substantial compliance with the enclosed documentation." Finally, users have recourse.

WordPerfect screen showing available Merge options.

A Few Warmups and Into the Game

Users can boot from the Workbench or from the CLI (Command Line Interface). No matter which way you start, WordPerfect allows direct menu/keyboard access to as many as 32 other windows. Each task window processes independently of the other, the way the Amiga was meant to be used.

The installation process is fast and easy, aided by the manual's clear text descriptions and screen shots. Printer selection (up to six at a time) is curious, to say the least, and I fell victim to a full disk. After you select each printer, a requester box asks if you want to save the information. An affirmative response causes a disk access, an apparent save of data concerning the first through sixth printer selections. Unfortunately, the final data storage is not performed until you exit the Printer Selection option. This is when I learned my disk was too full—and had to reselect all six printers. No major problem, just inconvenient.

Because I have used WordPerfect on IBMs and Apple IIs, and am familiar with the quality of WordPerfect's other software, I decided to test this translation directly—by writing this article with it. Trial by fire, to the nth degree.

During the initial phases it was necessary to call upon the on-line Help. Disk access was respectably fast, the help itself was useful. Just press a letter and, immediately, you can review information about all commands beginning with that letter.

Despite a lot of trial and error—even numerous deliberate crash attempts—WordPerfect hung together like a champ. It is such a relief to work with a solid, feature-laden program. Goodbye Textcraft and all the others.

Practice Makes "Perfect"

Despite its ease of use for basic tasks, all users should take the time to explore the Learning section of the manual. The lesson tutorials are invaluable; they don't teach you how to use the keys, they train you in activities and processes.

Preliminaries deal with file handling, font selection, page formatting, spell checking, use of the thesaurus and other basics. Later, however, the lessons move on in the same clear, precise fashion to more difficult tasks, such as footnotes/headers, alternate data screens, creation and manipulation of math and text columns, and endnotes. The methods by which WordPerfect performs outlining, paragraph numbering and creation of user-defined lists, indices and tables of contents are examined fully. Although the marking procedures are described well, they may take some getting used to—not because of their complexity, but because of their capabilities.

Another major topic of discussion is the macro. Not only can you create multiple macros, but you can also chain them for automated, continuous operation. In other words, macro X causes macro Y to function, which then launches macro Z. You can build complex, nested macros with little effort. You build all macros by example, that is, every key pressed while in the Macro Creation mode records into a special file for later replay—clearly *the* way to create macros.

Macros are a great way to take the drudgery out of indexing large files. Build an indexing macro around WordPerfect's search function and voilà!—you get instant inclusion of all occurrences of the targeted word. No muss, no fuss.

A further examination of the program's macro capabilities exemplifies the reasons for the high praise heaped on this title. If you wish, you can build macros,

WordPerfect's Features

Advance to Line
Advance Up/Down
Alignment Character
Append Block (Block on)
Auto Hyphenation
Auto Rewrite
^B
Backspace
Binding Width
Block
Block, Cut/Copy (Block on)
Block Protect (Block on)
Bold
Border Draw
Cancel
Cancel Hyphenation
Cancel Job(s)
Case Conversion (Block on)
Center
Center Page Top to Bottom
Change Directory
Change Print Options
Colors
Column, Cut/Copy (Block on)
Column Display
Columns, Text
Conditional End of Page
Copy (List Files)
Create Directory
Ctrl/Alt Key Mapping
Date
Default Print Job
Delete
Delete (List Files)
Delete Directory (List Files)
Delete to End of Line (EOL)
Delete to End of Page (EOP)
Delete to Left Word Boundary
Delete to Right Word Boundary
Delete Word
Display All Print Jobs
Display Printers and Fonts
Document Conversion
End
Endnote
Escape
Exit
Flush Right
Font
Footnote
Full Text (Print)
Generate
"Go" (Resume Printing)
Hard Page
Hard Return
Hard Space
Headers or Footers
Help
Hold Print Job
Home
Hyphen
Hyphenation On/Off
H-Zone
→Indent
→Indent←
Index
Insert Printer Command
Italics
Justification On/Off
Line Format
Lines per Inch
List (Block on)
List Files
Locked Documents
Look
Lowercase Conversion (Block on)
Macro
Macro Define
Macro Pause
←Margin Release
Margins
Mark Text
Math
Merge
Merge Codes
Merge E
Merge R
Modify Priority
Move
Name Search
New CLI
New Number (Footnote)
New Page Number
Number of Copies
Outline
Overstrike
Page Format
Page Length
Page Number Column Positions
Page Number Position
Page (Print)
Paragraph Number
Pitch
Postpone Print Job
Print
Print (List Files)
Print a Document
Print Block (Block on)
Print Format
Print Job Destination
Printer Control
Printer Number
Proportional Spacing
Rectangle, Cut/Copy (Block on)
Redline
Remove
Rename
Replace
Retrieve
Retrieve (List Files)
Retrieve Column (Move)
Retrieve Rectangle (Move)
Retrive Text (Move)
Return
Reveal Codes
Rewrite
Rush Print Job
Save
Screen
Screen Colors
→Search
←Search
Select Printers
Send Printer a Go
Sheet Feeder Bin Number
Spacing
Specify Priority
Spell
Stop Current Job
Strikeout (Block on)
Super/Subscript
Suppress Page Format
Switch
Tab
Tab Align
Table of Contents (Block on)
Tab Set
Text File
Text In (List Files)
Text In/Out
Text Lines
Thesaurus
Time
Top Margin
Typeover
Undelete
Underline
Underline Style
Uppercase Conversion (Block on)
Widow/Orphan
Word Count
Word Search

as well as conditional macros, to chain upon encountered conditions—if. . . then. . . else and so forth. Such a display of logic would make Mr. Spock emerald with envy.

Spell's Not Swell . . . But a Hearty Chorus for Thesaurus

There is one blip in this sea of overwhelming superiority—the spelling checker. The problem is not in *what* it does (because it does virtually everything but prevent misspellings in the first place), but in the *the amount of time* it takes to get from here to there. Functionally speaking its only shortcoming involves the ways in which users perform a spellcheck. Although you can check a word, a page or an entire document at a time, you cannot check a user-defined block of text.

On the other hand, the thesaurus (on the same disk as the spelling checker) is not only powerful, but it is fast. It processes words identified via cursor positioning for synonyms or antonyms, and groups them further by related subcategories within each class. Like the speller, the thesaurus has access to over 100,000 words.

Author! Author!

While there are many things WordPerfect can do to make your word processing chores go faster, there are even more ways in which it can expand your horizons. Just think about its ability to combine extensive merge capabilities with its macro features. The mind boggles.

WordPerfect's telephone support is hard to beat: unlimited, toll-free support from a large group of knowledgeable personnel. Hours are listed in the manual, along with peak calling times so you can avoid them. Smart, real smart; just like the design and execution of WordPerfect for the Amiga. Attention to detail and concern for users has made WordPerfect the best-selling IBM word processor. It should do the same for Amigaphiles as well. This is the best Amiga program of the year—if not to date.■

WordPerfect
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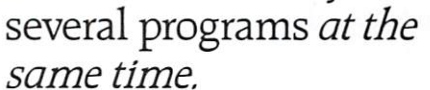


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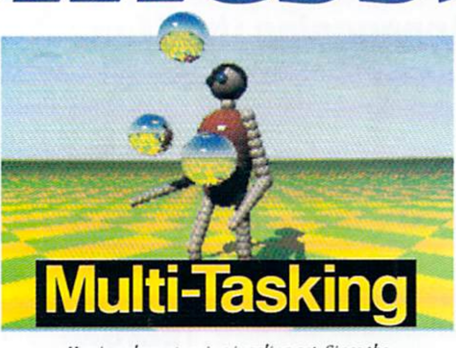
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```
Aztec SDB: test.c
11  : main(argc, argv)
12  : char **argv;
13  : {
14  :     int i;
15  :
16  :     for (i=0;i<sizeof(Items)/sizeof(struct items);i+
>17 :         process_item(&Items[i]);
18  : }
19  :
20  : process_item(itp)
21  : struct items *itp;
CMD?

int i = 1

struct items _Items = {
  struct items *next = 0x00000000
  char name[8] = "Item 2"
  long value = 3412
  int index = 129
}
```

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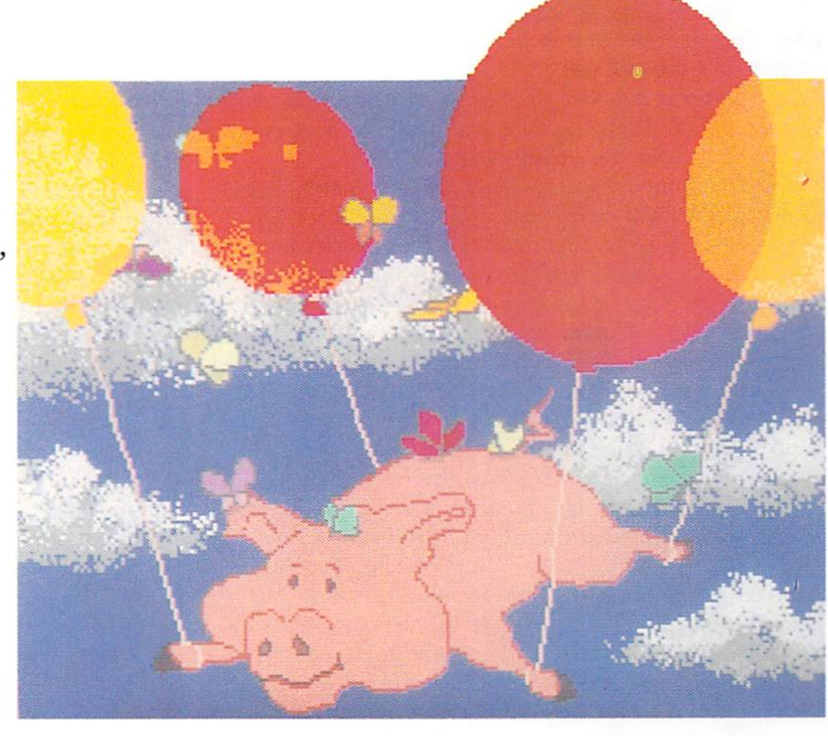
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GRAPHICS

THAT WON'T STAND STILL

Part III of our three-part animation tutorial using C will really get you "moving" and let you finally launch some trial balloons of your own.



By David T. McClellan

As Buddy Holly once said, "All my life, I've been a-waitin'/ Now let there be no hesitatin'." Although you've been waiting only through the last two issues, it's time to "get on the move" in this third and final part of our animation tutorial. We'll start by getting into basic movement and then tackle more complicated procedures such as collision handling, double buffering speedups and image change on the fly.

As an overview, however, before we get down to specifics, consider animation routines—by way of analogy—in terms of the way your body performs ordinary motor responses. Although picking up a glass of water appears to be a simple action, there are actually dozens of individually intricate components involved in the complete response. Fortunately, you do not have to think consciously about each one—you "learned" the sequences long ago. Similarly, in animation routines where VSprites and BOBs are to be moved, the Amiga graphics kernel acts like your brain in issuing instructions to the blitter and sprite hardware to move imagery around once you tell it where you want the Gel to go. All you have to do is put numbers in the Gel's X and Y fields; to achieve more complicated effects requires only slightly more effort on your part.

Our sample animation program, *pigs.c* (Listing 1) properly begins with the main( ) program. After finishing the necessary setup and initialization as described in Part II of this tutorial, the main( ) routine then enters the basic animation loop—you move the Gels, redraw the display and check for user interactions. My user interaction is simple—see if the user wants to quit—so all my interaction code is in main( ) itself. During each cycle it checks for Intuition messages via the window's UserPort after calling the move and display update routines. If it gets a CLOSEWINDOW message, it calls close_up_shop( ) to de-allocate and shut down everything, and then quits. It ignores all other messages and goes back to moving and drawing. The code to move the Gels is in move_objects( ) and bndcol_hdlr( ), the latter being the handler for Gel/boundary collisions. The display update code is in draw_objects( ).

You'll Need Collision on This Policy

After main( ) in the listing is my own version of a boundary collision handler, bndcol_hdlr( ). It gets two ►

ILLUSTRATED BY ROGER GOODE

parameters from the animation system—the offending VSprite and a flag describing where the hit occurred. A Gel/Gel collision routine would get two VSprite pointers. My routine looks at the VSprite's id (the my_id field of my VUserStuff) to determine what to do with it. The pigs and the balloon always run off the right screen edge and reappear again at the left; the butterfly reverses its horizontal direction each time it hits an edge. The balloon also speeds up or slows down at each collision to make things more interesting (which also shows how fast the display can be updated even without double buffering, which we will discuss later in this article). To move them, we modify the VSprite's X coordinate, since our Gel only run into the sides of the screen, and then we use draw_objects( ) to update the screen with the new Gel position. The imagery cleanup will happen at display update time, which is after collision handling for the current frame.

If we had one or more Gel/Gel collision handlers, we could handle such collisions as having the butterfly dive-bomb a pig. We might blow up the pig with an image change (reset the two VSprites' ImageData pointers), stop the VSprite from moving, and set a flag to delete the pig and re-use the sprites several frames later. This is one way in which games handle player/missile interactions. The HitMask and MeMask fields of the BOB/VSprite tell what classes of objects it can run into, so you can have some pass through or over each other without colliding. (You can also catch this in the collision handler, but it's easier to let the Amiga do the work via mask interaction—if the logical-and of one Gel's HitMask and the other's MeMask is 0, no collision routine is called.) Up to 15 more collision handlers could be specified (i.e., a total of 16); the particular handler invoked for a Gel/Gel collision is chosen by logically and-ing the HitMask of the upper Gel and the MeMask of the lower Gel (leftmost and rightmost, respectively, if their Y-coordinates are equal). The handler is chosen as the number corresponding to the rightmost on-bit of the and's result—rightmost bits being lowest. (Remember, bit 0 is reserved for Gel/boundary collisions.) Careful ordering of the Gels and their masks allows you to keep the collision handlers simple by spreading decision making out, which makes each handler that much faster.

Float Like a Butterfly, Sting Like a. . .Pig?

After a few passes with our one collision handler, you then need to become familiar with "the move-things-around" routine, move_objects( ). This routine moves the pigs, then the butterfly and then the balloon. I use several fields of my VUserStuff struct to control how often and how far each Gel moves; look at my VUserStuff (struct MyVinfo, defined in our include file listing, *pigs.h*, which appears in both Parts I and II, p. 100 in the Sept./Oct. issue and p. 108 in the November issue of *AmigaWorld*).

In move_objects( ) we also decide when a pig starts and finishes its jump (by its distance from the wall), and cycle the butterfly's vertical movement through an array of y-increments to simulate a fluttery sort of motion. We accomplish the moves as in bndcol_hdlr( ), by modifying the X and Y fields of each VSprite; we then follow up with draw_objects( ) to update the display.

At this point, with the object mover, we have another opportunity to change the image of a VSprite or BOB. If we wanted to make the butterfly look like it was really flapping its wings, we would cycle it through an array of images by changing its ImageData pointer each time through move_objects( ). Each image's wings would be in a different position—open, half-open or closed. We could also change the VSprite's color set at this time, because it will not be redrawn until the display routine waits for a Top-Of-Frame signal via WaitTOF( ).

Here is where I would also suggest user interaction via joystick or other device. You may want to consider reading the joystick via Exec device i/o. (See my article "Executive Control: Introduction to the Amiga's Kernel" in *AmigaWorld*'s Special Issue Reference Guide for 1987.) If user interaction is infrequent (less than every frame), I would use this method. For very frequent, high-bandwidth i/o, I would probably read the mouse port directly to avoid message-passing overhead. For each movement of the joystick, the move routine would adjust X/Y coordinates of a Gel and change information in its VUserStuff tailer. Button presses would cause new Gels (missiles) to be added to the Gel list or other graphics/sound modifications to occur (such as a laser beam via an XOR-ed line across the background BitMap).

Sorry, You'll Just Have to Wait. . .

Once move_objects( ) is done, draw_objects( ) takes over and sets about fixing the screen. This routine resorts the GelsInfo Gel list with SortGList( ) so that the blitter can handle things in their proper order; it then checks for collisions with DoCollision( ). After the collision handlers have finished, draw_objects( ) draws the Gel imagery with DrawGList( ), and then waits for the time between screen updates with WaitTOF( ). This wait is crucial to a clean and synchronous display of Gels. At this point, if you start running out of time during updates, you want to use the double-buffering procedure discussed in the next paragraph. Once WaitTOF( ) returns, draw_objects( ) calls MakeScreen( ) and RethinkDisplay( ) to tell Intuition to update its information and load the actual images to the screen. Then it's back to main( ) for the next cycle.

If you run out of time between screen updates, and you begin to experience flicker or glitches, you will need to start using the double-buffering procedure that I outlined briefly in a sidebar to Part II of this series last issue. You do this by allocating two sets of BitMaps for your screen with AllocRaster( ), telling Intuition the Screen is double-buffered, and allocating double-buffering structs for each Gel. You then must draw the proper background in each BitMap (and modify both backgrounds when either one is changed), and swap the Screen's BitMap every time your "draw-objects" code is called. The proper time to swap pointers is after the RethinkDisplay( ) call, so that the next cycle's actions ►

will work on the new BitMap after Intuition has used the old one.

If Counting Pigs Puts You to Sleep. . .

Given this organization, the program will move the VSprites and BOBs around until you get very tired of watching pastoral scenery. There are several things that you can now do to make it more interesting. For example, besides their uses for double buffering, extra BitMaps can be kept around for quick scenery changes; swapping one background instantly for another might teleport the pig from the wall into a dungeon. If you have a sufficient amount of memory, this makes for a much more playable game than one where a change of action causes a disk-grinding wait. The time to make the swap will again be just after a RethinkDisplay( ) call.

You can also import painted backgrounds from IFF format files from your favorite paint program for much prettier scenes than I drew; the IFF loading/saving code is in the public domain and can be kept small. I've seen one IFF displayer that takes only about 1K to run in.

Also, try changing the imagery or color sets on the fly, doing Gel/Gel collisions such as the dive-bombing, laser-guided butterfly, and enhancing the main( ) routine to get mouse moves from Intuition.

I researched the material for this article from the ROM Kernel Manual, Volume 1; the same material is in the Addison-Wesley Amiga Graphics Library book in somewhat neater form. I wish to thank the authors for their examples, and the folks at Commodore-Amiga who have sent tutorial programs and examples out over USENET during the past year.

Enjoy the program and use it and its parts as you see fit. Let me know of any startling innovations you make, or nifty hacks you discover. I had a lot of fun doing this tutorial, and I hope you will get some benefit—and enjoyment—from it as well.■

David T. McClellan is a contributing editor to AmigaWorld. *Address correspondence to him at 104 Chevron Circle, Cary, NC 27511.*

Listing 1. pigs3.c.

```
/*--------- Begin PIGS3.C -------------------------*/
/*-------------------------------------------------+
| Animation Tutorial - AmigaWorld Dec '87          |
| Program:      pigs.c                             |
| Author:       David T. McClellan                 |
| This program creates a simple animation demo with|
| several VSprites and a Bob moving across a back- |
| ground scene.The moving objects are:  two pigs,  |
| each consisting of two VSprites side-by-side; one|
| butterfly which uses one VSprite, and one eight- |
| color Bob.                                       |
|                                                  |
| File: pigs3.c - object movement and update.      |
+-------------------------------------------------*/
/*-------------------------------------------------+
| Include Files. Note - pigs.h, published in the   |
| November '87 AmigaWorld,  includes all required  |
| Amiga Include files.                             |
+-------------------------------------------------*/
#include "pigs.h"
/*---------+
|   Code   |
+---------*/
main()
{
   struct IntuiMessage *message;
   ULONG msgclass;
   ULONG msgcode;
   setup();  /* Init libraries, screen, gels, etc. */
   draw_objects();
   for(;;) /* Do this until user gets bored */
   {
     move_objects(); /* Move VSprites and Bobs for
                        next frame. */
     draw_objects(); /* Update system's idea of what
                        the screen looks like. */
       /* See if user asked us to quit */
     while ((message = (struct IntuiMessage *)
              GetMsg(win->UserPort)) != NULL)
     {
       msgclass = message->Class;
       msgcode = message->Code;
       ReplyMsg(message);
       switch (msgclass)
       {
         case CLOSEWINDOW :
           close_up_shop();
           exit (0);
         default:
           break;
       }  /* switch */
     } /* end while */
   /* On to next screen update... */
   } /* end for */
}
/*------------+
| bndcol_hdlr |
+------------*/
/*-------------------------------------------------+
| This routine handles VSprite/Bob & boundary      |
| collisions. It knows about MyVSprite ordering,   |
| and its name is known to getGelsInfo so its      |
| address can be stuck in the collision table.     |
+-------------------------------------------------*/
void bndcol_hdlr(vsp, boundary)
   struct VSprite *vsp;
   int boundary;
{
   VUserStuff *vuse; /* To get at my_id's and such */
   int i;  /* To handle left half of pig */
   vuse = &(vsp->VUserExt);
   if ((vuse->my_id == PIG1R_ID) || (vuse->my_id
                                     == PIG2R_ID))
/* As pigs move l to r, right VSprite of Pig */
/* will always be the one colliding with the */
/* side of the screen first.  */
/* Move pig back "around" to left side of screen.  */
     {
       i = vuse->my_id - 1;
            /* Left VSprite id one less than right. */
       MyVSprites[i]->X = 1;     /* Left edge plus 1. */
       vsp->X = 17;      /* Width of left plus left X */
     }
   else if (vuse->my_id == BFLY_ID)       /* Butterfly
impacts left & right boundaries. Swap directions.   */
     {
       vuse->xincr = -(vuse->xincr);
       if (boundary & RIGHTHIT)
         vsp->X--;
       else   /* LEFTHIT */
         vsp->X++;
     }
```

Continued on p. 32



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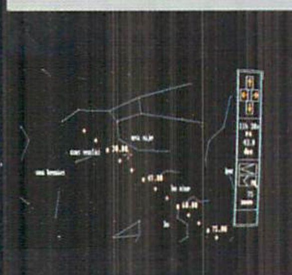
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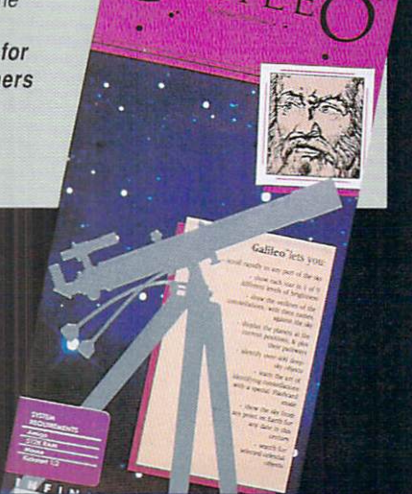
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from p. 30

```
   else
/* Balloon. Move back to left side, check and alter
speed. Balloon speeds up to a maximum  speed, then
slows back to 1 pixel/frame, cyclically. It changes
each collision. */
   {
     vsp->X = 1;            /* Move to left side */
     if (vuse->myflags == BALLF_SPEED)
     {
       if (vuse->xincr < BALL_MAXSPEED)
         vuse->xincr++;  /* Speed up 1 pixel/frame */
       else   /* Peaked. Slow down */
       {
         vuse->myflags = BALLF_SLOW;
         vuse->xincr--;
       }
     }
     else  /* Slowing down */
     {
       if (vuse->xincr > 1)
         vuse->xincr--; /* Slow 1 pixel/frame */
       else   /* Speed up again */
       {
         vuse->myflags = BALLF_SPEED;
         vuse->xincr++;
       }
     }
   }
   return;
}
/*-------------+
| move_objects |
+-------------*/
/*-----------------------------------------------+
| This routine moves the objects under normal    |
| circum stances (non-collision). It knows about |
| when pigs should jump, rise, and fall; and how |
| the butter fly and balloon move.               |
+-----------------------------------------------*/
move_objects()
{
   VUserStuff *vuse;
   struct VSprite *vsp;
register int i;
   int rightx;
    /* Move Pigs */
   for (i=PIG1L_ID; i<= PIG2L_ID; i +=
                                    SPRITES_PER_PIG)
   {
     vsp = MyVSprites[i];
     vuse = &(vsp->VUserExt);
         /* Check to see if mid-jump, end-jump, */
         /*   or jump beginning. */
     rightx = vsp->X + PIG_WIDTH - 1;
     if (vuse->myflags == PIGF_RISE)
     { /* Rising. At middle? */
       if (rightx >= JUMP_MID)
       {
         vuse->myflags = PIGF_FALL;
         vuse->yincr = PIG_YDOWN;
       }
     }
     else if (vuse->myflags == PIGF_FALL)
     {  /* Falling. At end - feet on ground? */
       if ((vsp->Y + PIG_HEIGHT) >= GRASSLEVEL)
       { /* Ensure on ground */
         vsp->Y = GRASSLEVEL - PIG_HEIGHT;
         MyVSprites[i+1]->Y = vsp->Y;
           /* Running again */
         vuse->myflags = PIGF_RUN;
         vuse->xincr = PIG_XRUN;
         vuse->yincr = PIG_YRUN;
         vuse->whenx = vuse->xstart = PIG_WXRUN;
         vuse->wheny = vuse->ystart = PIG_WYRUN;
       }
     }
     else if ((rightx >=
               JUMP_BEGIN) && (rightx < JUMP_MID))
     {   /* Running. At start of jump. */
       vuse->myflags = PIGF_RISE;
       vuse->xincr = PIG_XJUMP;
       vuse->yincr = PIG_YUP;
       vuse->whenx = vuse->xstart = PIG_WXJUMP;
       vuse->wheny = vuse->ystart = PIG_WYJUMP;
     }
         /* Now see if need to move */
     if (!(--(vuse->whenx)))
     {  /* Time to move */
       vuse->whenx = vuse->xstart;
       vsp->X += vuse->xincr;
       MyVSprites[i+1]->X += vuse->xincr;
     }
     if (!(--(vuse->wheny)))
     {  /* Time to move */
       vuse->wheny = vuse->ystart;
       vsp->Y += vuse->yincr;
       MyVSprites[i+1]->Y += vuse->yincr;
       if (vuse->myflags == PIGF_RUN)
         /* Pig hop-runs */
         vuse->yincr = -(vuse->yincr);
     }
   } /* end for */
     /* Move Butterfly */
   vsp = MyVSprites[BFLY_ID];
   vuse = &(vsp->VUserExt);
   if (!(--(vuse->whenx)))
                     /* Time to move in x direction */
   {
     vuse->whenx = vuse->xstart;
     vsp->X += vuse->xincr;
   }
   if (!(--(vuse->wheny)))
   {
     vuse->wheny = vuse->ystart;
     vsp->Y += bfly_ys[vuse->yincr];
     vuse->yincr = (vuse->yincr + 1) % BFLY_CYCLE;
   }
     /* Move Balloon */
   vsp = MyBob->BobVSprite;
   vuse = &(vsp->VUserExt);
   if (!(--(vuse->whenx)))
                     /* Time to move in x direction */
   {
     vuse->whenx = vuse->xstart;
     vsp->X += vuse->xincr;
   }
} /* end move_objects */
/*-------------+
| draw_objects |
+-------------*/
/*-------------------------------------------------+
This routine redoes the gel setup and draw after each
move_objects call, and tells intuition to do it.
+-------------------------------------------------*/
draw_objects()
{
/* Update Objects, etc -
                  as in p. 2-125 and after, RKM v.1 */
   SortGList (&scr->RastPort);
                           /* Order list for copper */
   DoCollision (&scr->RastPort);
                        /* Boundary collision tests */
   DrawGList(&scr->RastPort, &scr->ViewPort);
                                     /* Draw Gels */
   WaitTOF(); /* Wait until CRT beam is retracing  */
              /*   to top-of-frame before updating.*/
   MakeScreen (scr); /* Let Intuition set up for   */
           /* redoing  screen with our new stuff. */
   RethinkDisplay(); /* Have Intuition do MrgCop   */
                /* and LoadView in our window. */
} /* end draw_objects */
/*---- End PIGS3.C ---------------------------------*/
```

■

This fall's hot new program stars 4 sexy Europeans and 1 American stud.

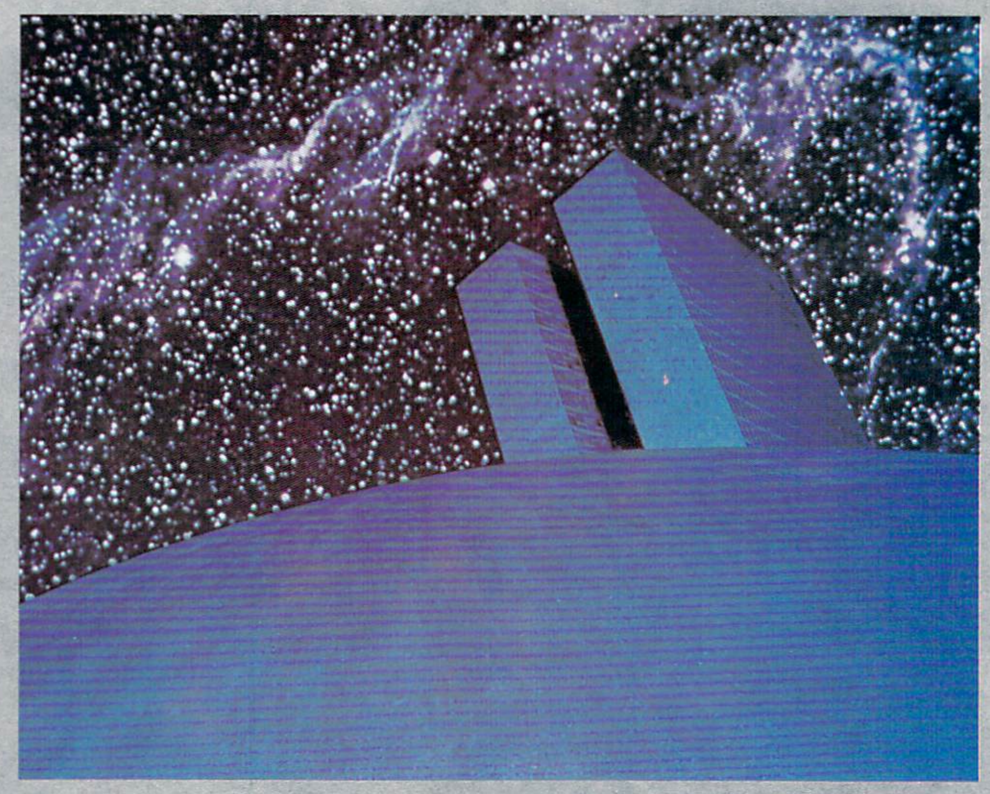


This fall's sizzling new program doesn't feature an Alexis, a Krystle, or even a Magnum, but it will have some pretty racy scenes. • Meet the exotic cars of Test Drive, Accolade's incredible driving simulation. There are the legendary greats from Europe: Ferrari Testarossa, Lotus Turbo Esprit, Porsche 911 Turbo and the incomparable Lamborghini Countach. And to make Test Drive a truly international event, there's the classic American star—the Chevrolet Corvette. • Test Drive allows you to experience firsthand the awesome driving characteristics of each renowned performer. They accelerate like the real thing. They handle like the real thing. They brake like the real thing. In fact, the animation and graphics of Test Drive are so realistic, you'll swear the G-Force has you pinned to your seat. • Accolade's Test Drive. It's one program that will definitely burn up the screen. • Accolade. 20813 Stevens Creek Boulevard, Cupertino, CA 95014. 408-446-5757.

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Written in 100% 68000 machine code for maximum speed, the 64 Emulator takes full advantage of your Amiga's hardware to support all aspects of the Commodore 64 including sound and color. A monochrome mode allows you to turn off the color for increased speed.

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Please have credit card number ready

THE 64 EMULATOR FOR YOUR AMIGA $39.95

Due to the nature of the Amiga, some 64 programs may not operate with The 64 Emulator.

Circle 24 on Reader Service card.

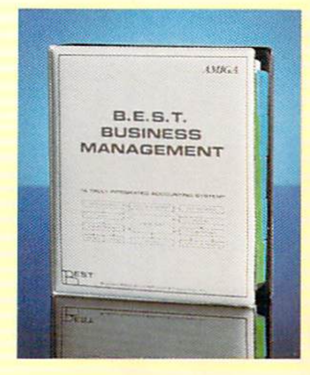
THE GREAT *software* BUYER'S GUIDE

GOT A SPARE $62,166.18? You could throw a Christmas party for a few hundred of your most intimate friends, or you could buy all 665 software packages available for the Amiga. If you're a game buff, $5,964.76 would buy you a complete set. A state-of-the-art graphics studio would cost you $8,915.05, while a music studio would only require $3,446.40. But, as they say in the car commercials, these prices—and products and companies—are subject to change without notice. We've tried to make this year's listing as accurate as possible. Without accurate information, a buyer's guide is only good for rolling up and flogging the editors who compiled it. Here at *AmigaWorld* we hate pain and will do most anything to avoid it—including spending a solid week on the phone calling, recalling, leaving messages for and threatening 183 companies. (AT&T loves us.)

So, while we nurse our aching ears (and fingers. . .somebody had to type all this in, you know), you can thumb through the pages compiling your own wish list of products. Only programs that will be available by the start of 1988 were listed. (Watch our new products column, What's New?, for future releases.) The number of products has doubled since last year, so we had to cut our descriptions in half. If you need more information, call the manufacturer. We tried to keep our categorization as logical and consistent as possible, but if you're not sure where to find an obscure program, its probably listed under that wonderful catch-all heading, Utilities.

Compiled by Linda Barrett and Bob Ryan

PHOTOGRAPHED BY FRANK CORDELE



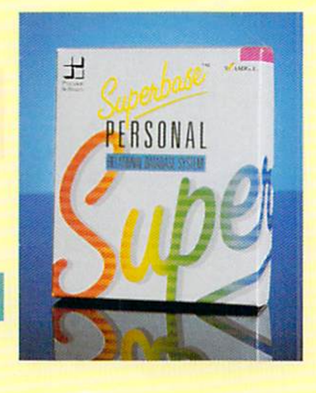
BUSINESS

PRODUCT	COMPANY	PRICE	DESCRIPTION
Accounting	Computerware	$ 99.00	$99 per module: AR, AP, GL, IC, PR, check ledger
AMT	The Other Guys	$ 39.99	amortization and cost evaluation
Arima Techniques	Lionheart Press Inc.	$ 95.00	Box-Jenkins analysis of time-series
B.E.S.T. Basic Ledger	B.E.S.T. Inc.	$ 79.95	ledger package
B.E.S.T. Business Management 2.0	B.E.S.T. Inc.	$395.00	business accounting
Business Statistics	Lionheart Press Inc.	$145.00	statistical tools for business
CCI Bottom Liner	Clockwork Computers Inc.	$199.00	accounting with payroll
CCI Integrated Merchandiser	Clockwork Computers Inc.	$499.00	point of sale, inventory, accounting, payroll
Cluster Analysis	Lionheart Press Inc.	$125.00	all major cluster analysis algorithms
Decision Analysis Techniques	Lionheart Press Inc.	$145.00	decisions on incomplete or conflicting data
Econometrics	Lionheart Press Inc.	$145.00	based upon Johnson's Econometric Methods
Experimental Statistics	Lionheart Press Inc.	$145.00	general purpose statistics
Exploratory Data Analysis	Lionheart Press Inc.	$ 85.00	analysis based upon median of data sets
Forecasting and Time-Series	Lionheart Press Inc.	$145.00	analysis of time-series
Inference	Lionheart Press Inc.	$ 95.00	cumulative statistical distributions
Inventories & Queues	Lionheart Press Inc.	$ 95.00	inventory management
KEEP-Trak	The Other Guys	$ 49.99	general ledger
Linear and Non-Linear Prog.	Lionheart Press Inc.	$ 95.00	based upon SIMPLEX and Monte Carlo
Marketing Statistics	Lionheart Press Inc.	$145.00	collecting and analyzing marketing statistics
Matrix Operations	Lionheart Press Inc.	$ 95.00	includes transfer to and from spreadsheets
Multivariate Analysis	Lionheart Press Inc.	$125.00	for advanced users
Nimbus I	Oxxi Inc.	$149.50	cash accounting for small businesses
Optimization	Lionheart Press Inc.	$145.00	different optimization programs
PAR Real I	PAR Software	$149.95	real estate property analysis
Project Planner	Lionheart Press Inc.	$145.00	PERT and Critical Path
Quality Control/Ind. Experiments	Lionheart Press Inc.	$145.00	statistical basis of quality control
Rags to Riches	Chang Labs	$499.50	ledger, payables, receivables; 199.95 each
Regression	Lionheart Press Inc.	$ 95.00	based upon least squares techniques
Sales and Market Forecasting	Lionheart Press Inc.	$145.00	how to make a forecast
SoftWood Ledger	SoftWood Company	$ 99.95	business accounting
Works!, The	Micro-Systems Software	$199.95	integrates Scribble!, Analyze! and Organize!

DATABASES

PRODUCT	COMPANY	PRICE	DESCRIPTION
Acquisition	Taurus-Impex	$299.95	relational database
Acquisition Pioneer	Taurus-Impex	$139.95	scaled-down Acquisition
Amiga Grid File	TDI Software Inc.	$ 49.95	file manager includes source code
Datamat A-200	Transtime Technologies	$249.95	relational database
Datamat A-300	Transtime Technologies	$349.95	relational DB with regression analysis and graphs
DataRetrieve	Abacus	$ 79.95	accesses eight files simultaneously
dBMan	VersaSoft	$149.95	relational database, dBase compatible
Family Tree	Micromaster Software	$ 49.95	geneology database
Info +	Eastern Telecom Inc.	$ 49.99	file manager
InfoBase	Harvsoft	$ 24.95	file manager
Infominder	Byte by Byte	$ 89.95	hierarchical data retrieval system
Microfiche Filer	Software Visions	$ 99.00	file manager, graphic interface
Omega File	The Other Guys	$ 79.99	file manager
Organize!	Micro-Systems Software	$ 99.95	dBase compatible, math functions
Record Master Amiga	WoodSoftware	$ 49.95	file manager
SoftWood File II	SoftWood Company	$ 99.95	file manager

PRODUCT	COMPANY	PRICE	DESCRIPTION
SoftWood File IIsg	SoftWood Company	$124.95	file manager includes graphics and sound
Superbase Personal	Progressive Peripherals	$149.95	file manager
Superbase Professional	Progressive Peripherals	$299.95	relational database



DESKTOP PUBLISHING

PRODUCT	COMPANY	PRICE	DESCRIPTION
City Desk	MicroSearch	$149.95	page layout program
ComicSetter	The Gold Disk	$ 99.95	simple page layout
LaserScript	The Gold Disk	$ 44.95	Postscript driver for PageSetter
PageSetter	The Gold Disk	$149.95	page layout
Professional Color Separator	The Gold Disk	$195.00	color separations for Professional Page
Professional Page	The Gold Disk	$395.00	high-end desktop publishing
Publisher 1000	Brown-Waugh	$199.95	WYSIWYG desktop publishing
Shakespeare	Infinity Software	$225.00	page layout program

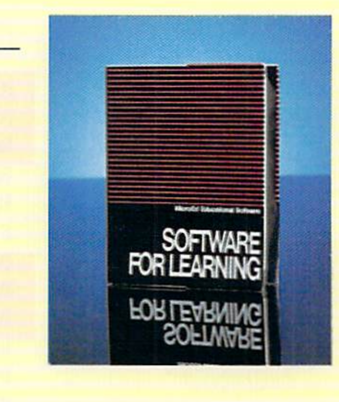
EDUCATION

PRODUCT	COMPANY	PRICE	DESCRIPTION
Abraham, Friend of God	Micro Ed Inc.	$ 29.95	Bible studies, includes book
Across the Plains	Micro Ed Inc.	$ 59.95	westward migration, two disks
Adam and Eve	Micro Ed Inc.	$ 29.95	Bible studies, includes book
Adventures of Sinbad, The	Unicorn Software	$ 49.95	classic literature
Aesop's Fable	Unicorn Software	$ 49.95	stories with morals
Algebra	True BASIC Inc.	$ 49.95	fundamentals of Algebra
All About America	Unicorn Software	$ 59.95	social studies
American History Adventure	Queue	$ 59.95	identify historical persons
Analogies I	Queue	$ 65.00	SAT prep
Analogies II	Queue	$ 65.00	SAT prep
Animal Kingdom	Unicorn Software	$ 49.95	six educational activities
Antonyms	Queue	$ 34.95	SAT prep
Basic Grammar	Micro Ed Inc.	$ 29.95	grammar tutor
Beginning Counting Program	Micro Ed Inc.	$ 39.95	for preschoolers
Beginning Reading Skills	Micro Ed Inc.	$ 89.95	four disks
Calculus	True BASIC Inc.	$ 49.95	first course in Calculus
Capitalization	Micro Ed Inc.	$ 29.95	grammar tutor
Chipendale	True BASIC Inc.	$ 49.95	statistical analysis
College Aptitude Reading	Queue	$ 65.00	SAT prep
Comprehensive Grammar Review I	Queue	$ 54.95	grades seven to 12, includes textbook
Comprehensive Grammar Review II	Queue	$ 54.95	grades seven to 12, includes textbook
Discovery	MicroIllusions	$ 39.95	math or spelling versions, space adventure
Discovery Data Disks	MicroIllusions	$ 19.95	science, math concepts, geography, etc.
Discrete Math	True BASIC Inc.	$ 49.95	math for computer scientists
Dream is Alive, The	Tech Soft	$ 19.99	space shuttle slide show
Early Great Lakes Fur Trade	Micro Ed Inc.	$ 79.95	three disks plus book
Eighth Grade Reading	Queue	$ 65.00	60 lessons
Elementary Social Studies Vocabulary	Micro Ed Inc.	$ 29.95	beginning social studies
First Christmas, The	Micro Ed Inc.	$ 29.95	Bible studies, includes book
First Letters and Words	First Byte	$ 49.95	letter identification



PRODUCT	COMPANY	PRICE	DESCRIPTION
First Shapes	First Byte	$ 49.95	shape identification for preschoolers
Fraction Action	Unicorn Software	$ 49.95	use knowledge of fractions to escape the dungeon
French Grammar I	Queue	$ 34.95	nouns, articles, some irregular verbs
French Grammar II	Queue	$ 34.95	adjectives, interrogatives, partitive article
French Grammar III	Queue	$ 34.95	conjugation, regular verbs, imperative
Galileo	Infinity Software	$ 59.95	astronomy program
Galileo II	Infinity Software	$ 69.95	more stars, overview of solar system
Genesis-Deuteronomy	John 1:1 Graphics	$ 34.95	Bible on disk
Good Samaritan, The	Micro Ed Inc.	$ 29.95	Bible studies, includes book
Grade Manager	Associated Computer Serv.	$ 89.95	Electronic Gradebook
Halley Project, The	Mindscape	$ 9.95	learn about the solar system
How A Bill Becomes Law	Queue	$ 49.95	usher a bill through Congress
How To Spell	Queue	$ 39.95	grades four to seven
In the Beginning	Micro Ed Inc.	$ 29.95	Bible studies, includes book
In the Promised Land	Micro Ed Inc.	$ 89.95	Bible studies for adults, five disks plus book
Intellitype	Electronic Arts	$ 49.95	Typing tutor
Introducing Maps	Micro Ed Inc.	$ 59.95	two disks
Job-Songs of Solomon	John 1:1 Graphics	$ 19.95	Bible on disk
Keyboard Cadet	Mindscape	$ 39.95	typing tutor
Kid Talk	First Byte	$ 49.95	talking word processor for children
Kinderama	Unicorn Software	$ 49.95	five early learning games
Kwik-Speak I	Eclipse Data Management	$ 46.95	beginning and intermediate Spanish
Learning American English	Micro Ed Inc.	$ 89.95	package two, five disks
Learning American English	Micro Ed Inc.	$ 89.95	package one, five disks
Learning the Alphabet	Micro Ed Inc.	$ 29.95	preschool
Lessons in Reading/Reasoning 1	Queue	$ 39.95	Grades nine and up, shifty-word, circular fallacy
Lessons in Reading/Reasoning 2	Queue	$ 39.95	Grades nine and up, inadequate data, red herrings
Lessons in Reading/Reasoning 3	Queue	$ 39.95	Grades nine and up, stereotyping, fallacies
Lessons in Reading/Reasoning 4	Queue	$ 59.95	Grades nine and up, sexism fallacy, proverbs
Lessons in Reading/Reasoning Pack.	Queue	$149.95	Grades nine and up, teaches about fallacies
Lewis and Clark Expedition	Micro Ed Inc.	$ 89.95	with digitized pictures, five disks
Linkword Languages	Artworx	$ 29.95	learn foreign languages
Magical Myths	Unicorn Software	$ 49.95	mythology
Making Our Constitution	Micro Ed Inc.	$ 79.95	four disks
MasterType	Mindscape	$ 39.95	typing tutor
Match-it	The Other Guys	$ 39.99	pattern recognition
Math Talk	First Byte	$ 49.95	talking math tutor
Math Talk Fractions	First Byte	$ 49.95	talking fraction tutor
Math Wizard	Unicorn Software	$ 49.95	four games that teach math skills
Math-A-Magician	The Other Guys	$ 39.99	learn math
Music Student I	Associated Computer Serv.	$ 59.95	learn fundamentals of music
New Tech Coloring Book	Software Toolworks	$ 19.95	color IFF pictures
New Testament	John 1:1 Graphics	$ 39.95	Bible on disk
Planetarium	MicroIllusions	$ 69.95	astronomy program
Practical Composition I	Queue	$ 44.95	Making Words Work
Practical Composition II	Queue	$ 54.95	Logical, Clear Sentences
Practical Composition III	Queue	$ 44.95	Selecting The Best Approach
Practical Composition IV	Queue	$ 44.95	Making Sentences Work
Practical Composition Pkg I	Queue	$144.95	I, II, III
Practical Composition Pkg II	Queue	$ 85.00	IV & V
Practical Composition Series	Queue	$229.95	all five in the series
Practical Composition V	Queue	$ 44.95	Using Words Correctly
Vocabulary	Queue	$ 54.95	high-school level
Pre-Calculus	True BASIC Inc.	$ 49.95	secondary-school level
Probability	True BASIC Inc.	$ 49.95	teaches probability theory
Punctuation	Micro Ed Inc.	$ 29.95	Programmar tutor
Quiz Master	Associated Computer Serv.	$ 79.95	create quizzes
Read & Rhyme	Unicorn Software	$ 49.95	four language arts activities
Read-a-Rama	Unicorn Software	$ 49.95	reading game

PRODUCT	COMPANY	PRICE	DESCRIPTION
Reading Adventure I	Queue	$ 39.95	grades two and three
Reading Adventure II	Queue	$ 59.95	grades four and five
Reading Adventure III	Queue	$ 59.95	grades six to eight
Reading and Thinking I	Queue	$ 54.95	grades two and three
Reading and Thinking II	Queue	$ 54.95	grades four and five
Reading and Thinking III	Queue	$ 54.95	grades six to eight
Senor Tutor	Finally Software	$ 69.95	Spanish instruction
Sentence Completion	Queue	$ 44.95	grades nine and up
Smooth Talker	First Byte	$ 49.95	text to speech program
Spanish Grammar I	Queue	$ 34.95	nouns, articles, regular verbs
Spanish Grammar II	Queue	$ 34.95	adjectives, pronouns
Spanish Grammar III	Queue	$ 34.95	preterit tense, superlatives
Speling Detective Game	Micro Ed Inc.	$ 39.95	spelling fun
Speller Bee	First Byte	$ 49.95	spelling tutor
Spelling Level 2	Micro Ed Inc.	$ 29.95	learn to spell
Spelling Level 3	Micro Ed Inc.	$ 29.95	learn to spell
Spelling Level 4	Micro Ed Inc.	$ 29.95	learn to spell
Spelling Level 5	Micro Ed Inc.	$ 29.95	learn to spell
Spelling Level 6	Micro Ed Inc.	$ 29.95	learn to spell
Starting A New Business	Queue	$ 59.95	simulation
Tales of the Arabian Nights	Unicorn Software	$ 49.95	classic literature
Talking Coloring Book, The	JMH Software	$ 29.95	color recognition
Talking Storybook	The Other Guys	$ 39.99	Christmas stories
Transcontinental Railroad	Micro Ed Inc.	$ 39.95	connecting the coasts
Trigonometry	True BASIC Inc.	$ 49.95	teaches trig
True Stat	True BASIC Inc.	$ 79.95	statistics
U.S. Geography Adventure	Queue	$ 59.95	travel the U.S.
Vocabulary Adventure I	Queue	$ 59.95	grades six to eight
Vocabulary Adventure II	Queue	$ 59.95	grades eight to 10
Vocabulary Adventure III	Queue	$ 59.95	grades 10-12
Vocabulary Series	Micro Ed Inc.	$ 49.95	high level
Word Demons	Micro Ed Inc.	$ 29.95	word usage
Word Master Vocabulary Builder, The	Unicorn Software	$ 49.95	learn new words
World Geography Adventure I	Queue	$ 59.95	The Americas
World Geography Adventure II	Queue	$ 59.95	Europe
World Geography Adventure III	Queue	$ 59.95	Africa
World Geography Adventure IV	Queue	$ 59.95	Asia
World History Adventure	Queue	$ 59.95	identify historical figures



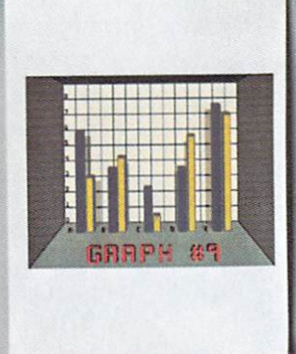
GAMES

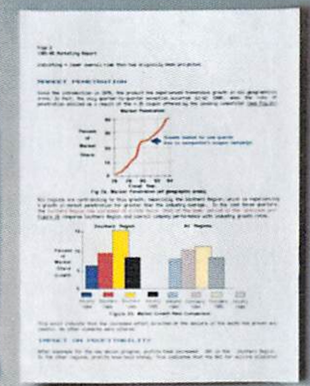
PRODUCT	COMPANY	PRICE	DESCRIPTION
10th Frame	Access Software	$ 39.95	bowling game
A Mind Forever Voyaging	Infocom	$ 14.95	text adventure, mail order only
Adventure Construction Set	Electronic Arts	$ 19.95	make your own adventures
Age of Sail	Conflict Recreations	$ 39.95	naval battles, online support for 2-40 players
Airball	MichTron	$ 39.95	save the wizard
Alien Fires-2199 AD	Paragon Software	$ 39.95	interactive adventure
Alternate Reality: The City	DataSoft	$ 39.95	role-playing adventure
Amiga Biorhythm	Astrosoft	$ 19.95	makes biorhythm charts
Arazok's Tomb	Aegis	$ 39.95	illustrated adventure
Archon	Electronic Arts	$ 19.95	arcade/strategy game
Archon II: Adept	Electronic Arts	$ 19.95	arcade/strategy game
Arcticfox	Electronic Arts	$ 39.95	arcade tank game

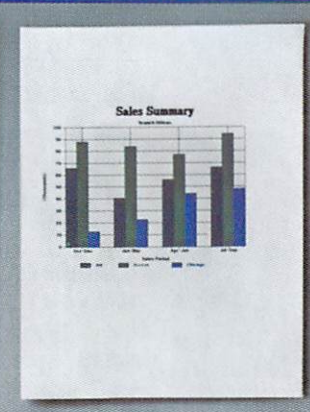


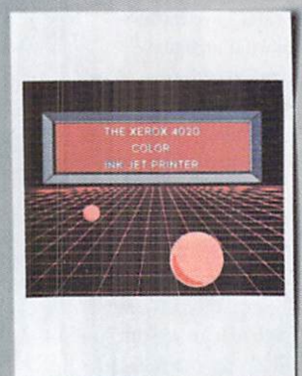
PRODUCT	COMPANY	PRICE	DESCRIPTION
Arena	Psygnosis Ltd.	$ 29.95	track and field events
Autoduel	Origin Systems	$ 49.95	based on Road Warrior
Balance of Power	Mindscape	$ 49.95	geopolitical strategy
Ballyhoo	Infocom	$ 14.95	text adventure, mail order only
Barbarian	Psygnosis Ltd.	$ 39.95	interactive graphic adventure
Bard's Tale	Electronic Arts	$ 49.95	role-playing adventure
Beyond Zork	Infocom	$ 49.95	illustrated adventure
Bingo Parlor	Silver Software	$ 19.95	one to ten players
Black Cauldron	Sierra On Line	$ 49.95	based upon Disney movie
Blackjack Academy	MicroIllusions	$ 39.95	teaches and plays
Blitzkrieg at the Ardennes	Command Simulations	$ 52.95	Battle of the Bulge simulation
Bowling	Silver Software	$ 19.95	arcade game
Bridge 5.0	Artworx	$ 34.95	contract bridge game
Bureaucracy	Infocom	$ 39.95	text adventure, mail order only
California Games	Epyx	$ 39.95	fun in the sun
Cashman	MichTron	$ 29.95	arcade action
Championship Baseball	Activision	$ 39.95	baseball simulation
Championship Basketball	Activision	$ 44.95	two-on-two basketball game
Championship Golf	Activision	$ 39.95	golf simulation
Chessmaster 2000	Software Toolworks	$ 39.95	chess game
Chessmate	Dark Horse	$ 29.95	chess program
Computer Baseball	Strategic Simulations	$ 14.95	strategy
Crimson Crown, The	Polarware Software	$ 19.95	illustrated adventure
Crossword Creator	Polyglot Software	$ 49.95	40,000 + word dictionary
Cutthroats	Infocom	$ 14.95	text adventure, mail order only
Dark Castle	Three-Sixty Inc.	$ 39.95	arcade game
Deadline	Infocom	$ 14.95	text adventure, mail order only
Deep Space	Psygnosis Ltd.	$ 34.95	arcade
Defender of the Crown	Mindscape	$ 49.95	strategy/arcade game
Deja Vu	Mindscape	$ 49.95	illustrated text adventure
Destroyer	Epyx	$ 39.95	command a warship
Diablo	Classic Compu	$ 29.95	strategy maze game
Dominoes	Polyglot Software	$ 24.95	board game
Donald Duck's Playground	Sierra On Line	$ 24.95	bufflehead adventures
Dr. Xes	Finally Software	$ 39.95	computer analyst
Dungeon Construction	MicroIllusions	$ 39.95	build a dungeon game
Earl Weaver Baseball	Electronic Arts	$ 49.95	baseball strategy
Ebonstar	MicroIllusions	$ 39.95	arcade space game
Emmetic Skimmer	Intelligent Memory	$ 34.95	arcade, four-direction scrolling
Enchanter	Infocom	$ 14.95	text adventure, mail order only
FaeryTale Adventure, The	MicroIllusions	$ 49.95	interactive adventure
Famous Course Disk	Accolade	$ 19.95	Mean 18 golf courses
Fantasie	Strategic Simulations	$ 39.95	role-playing adventure
Fantasie III: Wrath of Nicodemus	Strategic Simulations	$ 39.95	role-playing adventure
Ferrari Formula One	Electronic Arts	$ 49.95	racing simulation
Fight Night	Accolade	$ 44.95	boxing game
Financial Time Machine	INSIGHT/Lehner Comm.	$ 39.95	economics simulation
Firepower	MicroIllusions	$ 24.95	arcade tank game, can be used over modem
Flight Simulator II	subLOGIC	$ 49.95	flight simulator
Galactic Invasion	MicroIllusions	$ 24.95	space battle
Galaxy Fight	Intelligent Memory	?	arcade
Garrison	Intelligent Memory	$ 49.95	role-playing adventure
GeeBee Air Rally	Activision	$ 39.95	airplane race
GFL Championship Football	Activision	$ 44.95	arcade football game
Go	Infinity Software	$ 39.95	oriental strategy board game
Gold Runner	MichTron	$ 39.95	arcade
Golden Path	Firebird Licensees	$ 44.95	animated adventure
Golden Pyramid, The	Micro Entertainment	$ 29.95	Wheel of Fortune Game
Grand Slam	Infinity Software	$ 49.95	tennis game

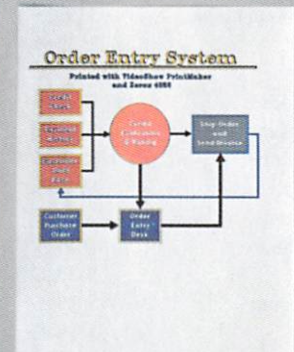




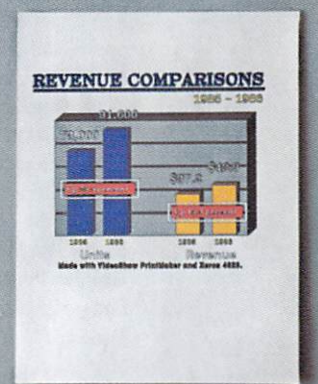


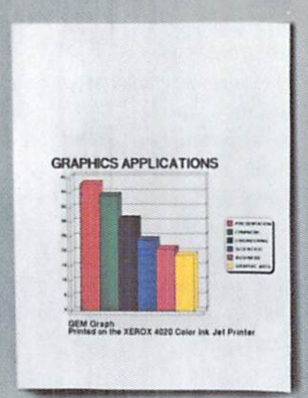




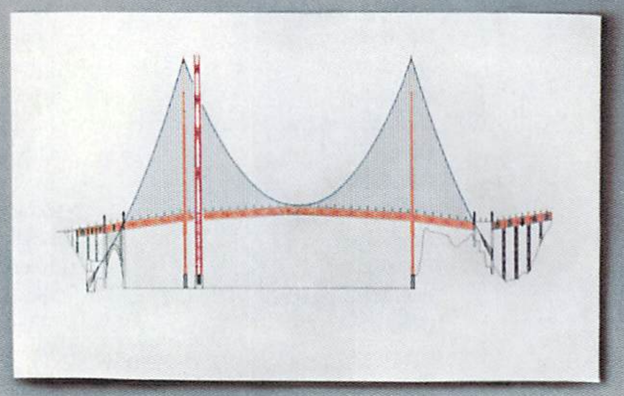












The Xerox 4020 Ink-Jet Printer is making headlines with unlimited color.

If you want to make headlines with your next business presentation, try adding color with the Xerox 4020 Color Ink-Jet Printer.



The 4020 is a high-quality, attractively priced printer that mixes text with brilliant color graphics. It employs the latest advances in ink-jet technology to deliver seven distinct colors which combine to produce over 4,000 different shades.

But the 4020 makes more than just a colorful impact. It also has a resolution that few color ink-jet printers can match, prints 2 to 3 times faster than comparably priced color printers, and can be installed by just about anyone in less than 10 minutes.

Like all Xerox products, the reliable 4020 is backed by one of the best service and support organizations in the industry: Team Xerox. To learn more about the 4020 Color Ink-Jet Printer, send in the coupon below or call 1-800-TEAM-XRX, ext. 199A.



We've got a colorful solution to your business needs.

I'd like to learn more about the 4020 Color Ink-Jet Printer and what it can do for my business presentations.

☐ Please send me more information.
☐ Please have a sales representative contact me.

Send this coupon to: Xerox Corporation, P.O. Box 24, Rochester, NY 14692.

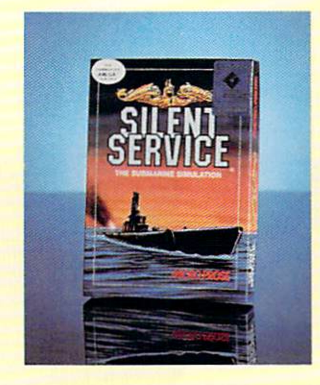
NAME ______ TITLE ______

COMPANY ______

ADDRESS ______ CITY ______

STATE ______ ZIP ______ PHONE ______

Or, if you can't wait, call
1-800-TEAM-XRX, ext. 199A.
199A. (1-800-832-6979, ext. 199A.) 999-6-57



PRODUCT	COMPANY	PRICE	DESCRIPTION
Gridiron	Bethesda Softworks	$ 59.95	football action/strategy
Guild of Thieves	Firebird Licensees	$ 44.95	illustrated adventure
Gunship	MicroProse	$ 49.95	helicopter flight simulator
Hardball	Accolade	$ 44.95	arcade baseball
Head Coach	MicroSearch	$ 49.95	football simulation
Hex	Mark of the Unicorn	$ 39.95	arcade/strategy game
Hitchhikers Guide to the Galaxy	Infocom	$ 29.95	text adventure
Hollywood Hijinx	Infocom	$ 39.95	text adventure, mail order only
Indoor Sports	Mindscape	$ 49.95	darts, air hockey, bowling, ping pong
Infidel	Infocom	$ 14.95	text adventure, mail order only
Jet	subLOGIC	?	jet simulation
Jewels of Darkness	Firebird Licensees	$ 29.95	illustrated adventure
Kamfgruppe	Strategic Simulations	$ 59.95	WWII tank warfare
Karate Kid II	MichTron	$ 39.95	martial arts game
King of Chicago	Mindscape	$ 49.95	strategy/arcade
Kings Quest I	Sierra On Line	$ 49.95	illustrated adventure
Kings Quest II	Sierra On Line	$ 49.95	illustrated adventure
Kings Quest III	Sierra On Line	$ 49.95	illustrated adventure
Knight Orc	Firebird Licensees	$ 44.95	illustrated adventure
Land of the Legends	MicroIllusions	$ 49.95	interactive adventure
Leader Board	Access Software	$ 39.95	golf simulation
Leather Goddess of Phobos	Infocom	$ 39.95	text adventure
Lottery Assistant	Classic Compu	$ 39.95	lottery number generator
Lurking Horror, The	Infocom	$ 39.95	text adventure with sound
Mad Libs	First Byte	$ 19.95	fill in the blanks stories
Marble Madness	Electronic Arts	$ 49.95	based on popular arcade game
Mean 18	Accolade	$ 44.95	golf simulation
Mindwalker	Commodore	$ 49.95	3D arcade game
Moonmist	Infocom	$ 39.95	text adventure, mail order only
Mousetrap	Intelligent Memory	$ 29.95	arcade
Nord & Bert Couldn't. . .	Infocom	$ 39.95	text adventure, mail order only
Ogre	Origin Systems	$ 29.95	battle a mechanized tank
One-On-One	Electronic Arts	$ 19.95	Larry Bird and Doctor J. do battle
Oo-Topos	Polarware Software	$ 19.95	sci-fi graphics adventure
Pawn, The	Firebird Licensees	$ 44.95	illustrated adventure
Planetfall	Infocom	$ 14.95	text adventure, mail order only
Plundered Hearts	Infocom	$ 39.95	text adventure, mail order only
Quintette	Miles Computing Inc.	$ 39.95	Penta game
Quizam	Interstel	$ 34.95	trivia game
Racter	Mindscape	$ 44.95	AI program
Return to Atlantis	Electronic Arts	$ 49.95	aquatic adventure
Roadwar 2000	Strategic Simulations	$ 39.95	action/strategy
Rogue	Epyx	$ 39.95	role-playing adventure
Romantic Encounters at the Dome	MicroIllusions	$ 39.95	adult text adventure
Scenery Disk #11	subLOGIC	$ 24.95	Flight Simulator scenery
Scenery Disk #7	subLOGIC	$ 24.95	southeastern U.S.
SDI	Mindscape	$ 49.95	arcade
Seastalker	Infocom	$ 14.95	text adventure, mail order only
Seven Cities of Gold	Electronic Arts	$ 19.95	discover America
Shanghai	Activision	$ 39.95	strategy board game
Silent Service	MicroProse	$ 39.95	submarine simulation
Silicon Dreams	Firebird Licensees	$ 29.95	illustrated adventure
Sinbad and the Throne of the Falcon	Mindscape	$ 49.95	arcade/strategy game
Skyfox	Electronic Arts	$ 19.95	arcade
Software Golden Oldies	Software Toolworks	$ 19.95	Eliza, Life, Adventure, Pong
Sorcerer	Infocom	$ 14.95	text adventure, mail order only
Space Quest	Interstel	$ 49.95	interactive adventure
Spellbreaker	Infocom	$ 14.95	text adventure, mail order only
SPOC Collection	SPOC	$ 25.00	30 games and puzzles for the A500

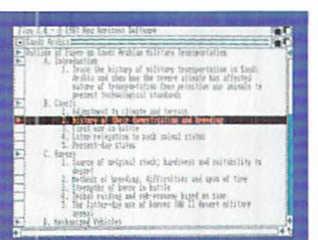
Flow

Idea Processor
For the Amiga® Computer

ProWrite

For the Amiga® Computer

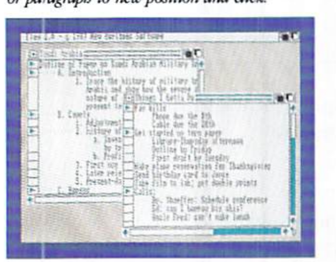
Together, They'll Take Your Thoughts And Words Anywhere An Amiga Can Go.



Outline format organizes ideas and information. Select any topic to expand.



Expand with subtext; then click to hide subtext. To change outline order, just drag any heading or paragraph to new position and click.



Cut and paste between screens, up to four at once.

Inside Your Mind To Capture Ideas As They Happen.

Never let another brainstorm slip by. Turn it loose in Flow™, the idea processor for Amiga. Whether you are working on a term paper or a business prospectus, Flow's outline format lets you jot down ideas quickly to build a preliminary framework. Then expand those ideas with subtext. Click to see the details, then click again to hide them and keep the big picture up front. Flow's flexibility gives you freedom to eliminate, rearrange and manipulate ideas so easily, you'll never use a scratch pad again.

The same process also works wonders on catalogs or to-do lists, speedily reducing large amounts of random data to multiple levels of organization. It's also great for scheduling and tracking projects over a period of time. And when you are ready to turn that Flow outline into a finished paper, the document can be loaded into ProWrite or other Amiga word processing software for further work.

It's a snap to use, with most commands mouse or keyboard operative, and multi-tasking power as well. So let your thoughts go—with Flow!

Over The Rainbow With The Only Multi-font Color Graphics Word Processor.

ProWrite™ masters the potential for Amiga word processing by giving you more than ho-hum words-on-a-page. Unleash the power of color in commanding headlines. Highlight key paragraphs or make important words jump off the page in full-spectrum hues. The possibilities are endless with ProWrite's wide variety of fonts, sizes and styles.

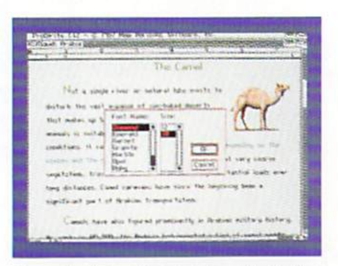
And when words alone aren't enough, punch up your document with IFF color graphics. Put text anywhere above, below or alongside the picture; even wrap words around the graphic for professional impact. And the active "what you see is what you get" principle means you know your printed output will live up to your best intentions.

Easy to use, ProWrite responds to mouse or key commands on most operations and features all the word processing tools you want: easy-to-set tabs and margins, multiple-line headers and footers, and paragraph-based formatting. Plus you can cut and paste among up to eight windows at once, and take full advantage of the Amiga's multitasking powers.

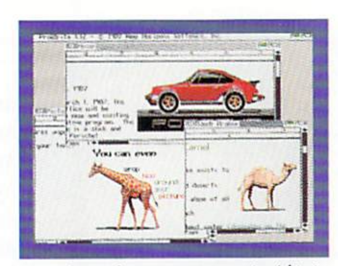
For any way you work with words, ProWrite is perfect: designed to combine creativity and versatility in an extremely easy-to-use package.



Use color in headlines or to highlight key words. Incorporate color graphics into copy.



Choose the font, style, point size and color that best suits your work.



Cut and paste between screens, up to eight at once. Wrap words around graphics for a professional look.



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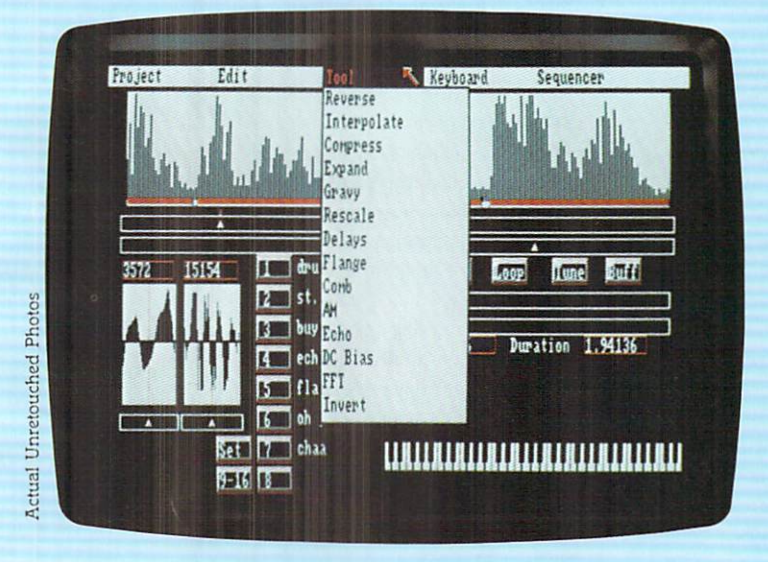
PRODUCT	COMPANY	PRICE	DESCRIPTION
Starcross	Infocom	$ 14.95	text adventure, mail order only
Starfleet I	Interstel	$ 59.95	space strategy
Starglider	Firebird Licensees	$ 44.95	arcade
Stationfall	Infocom	$ 39.95	text adventure, mail order only
Strip Poker	Artworx	$ 39.95	poker game
Strip Poker Data Disk #4	Artworx	$ 19.95	Dawn and Crystal
Strip Poker Data Disk #5	Artworx	$ 19.95	Cynthia and Janice
Sub Battle Simulator	Epyx	$ 39.95	command a sub
Surgeon, The	ISM Inc.	$ 49.95	surgery simulation
Suspect	Infocom	$ 14.95	text adventure, mail order only
Suspended	Infocom	$ 14.95	text adventure, mail order only
Talking Trivia	Megatronics	$ 19.95	2000 trivia questions
Telegames	Software Terminal	$ 34.95	chess, checkers, backgammon by modem
Telewar	Software Terminal	$ 39.95	tank, naval, and space battles by modem
Temple of Apshai Trilogy	Epyx	$ 19.95	role-playing adventure
Terrorpods	Psygnosis Ltd.	$ 34.95	strategy/arcade
Test Drive	Accolade	$ 44.95	sports car driving simulation
Time Bandits	MichTron	$ 39.95	based on the movie
Tournament Disk #1	Access Software	$ 19.95	courses for Leader Board
Transylvania	Polarware Software	$ 19.95	illustrated adventure
Trinity	Infocom	$ 14.95	text adventure, mail order only
Turbo	MicroIllusions	$ 24.95	auto racing
Ultima III	Origin Systems	$ 59.95	role-playing adventure
UltraBall	Discovery Software	$ 49.95	arcade game
Uninvited	Mindscape	$ 49.95	illustrated adventure
Video Vegas	Baudville	$ 34.95	gambling simulation
Winnie the Pooh in the Hundred Acre	Sierra On Line	$ 24.95	ursine adventure
Winter Games	Epyx	$ 39.95	fun in the snow
Wishbringer	Infocom	$ 14.95	text adventure, mail order only
Witchcraft	Intelligent Memory	$ 44.95	role-playing adventure
Witness, The	Infocom	$ 14.95	text adventure, mail order only
WordPlex	PAR Software	$ 34.95	Wheel of Fortune, up to 6 players
WordPlex Data Disks	PAR Software	$ 24.95	extra phrases
World Games	Epyx	$ 39.95	cliff diving, log rolling, etc.
Zork I	Infocom	$ 39.95	text adventure, mail order only
Zork II	Infocom	$ 14.95	text adventure, mail order only
Zork III	Infocom	$ 14.95	text adventure, mail order only
Zork Trilogy	Infocom	$ 69.96	Zork I, II and III

GRAPHICS/VIDEO

PRODUCT	COMPANY	PRICE	DESCRIPTION
Aegis Animator	Aegis	$ 139.95	polymorphic animation, includes Images
Aegis Draw	Aegis	$ 125.95	entry level design drawing
Aegis Draw Plus	Aegis	$ 259.95	2D CAD program
Aegis Images	Aegis	$ 39.95	paint program
Aegis Impact	Aegis	$ 89.95	business presentation graphics
Aegis Video Titler	Aegis	$ 99.95	video character and effects generator
Amiga Coloring Book	The Dragon Group	$ 34.95	IFF clip art
Analytic Art	Crystal Rose Software	$ 59.95	generates pictures using fractals
Animate 3D	Byte by Byte	$ 150.00	animates ray-traced images
Animator Jr.	Hash Enterprises	$ 79.95	simple animation
Animator: Apprentice	Hash Enterprises	$ 295.00	organic animation program
Animotion	Finally Software	$ 99.95	displays IFF pictures up to 20 frames per sec.

Real time video and music.

SunRize introduces PERFECT VISION and STUDIO MAGIC to enhance the look and the sound of your Amiga.





Actual Unretouched Photos

STUDIO MAGIC is the ultimate music and sound workshop with features superior to editors selling for thousands more. Compatible with model 1000, 500 and 2000 Amigas. Input sounds from stereo, VCR or microphone (with PERFECT SOUND interface) or a keyboard (with MIDI interface).

Create flanges, delays, echoes, compression and expansion to speed up (or slow down) without pitch change, do backward masking, etc. Other features include comb filter, DC bias, AM, Fast Fourier Transforms and visual representation of the sounds in the buffer.

A dozen menu driven tools allow you to make a child's voice sound like a titan or turn a TV pitchman into an alien from another galaxy. Record MIDI input in real time. Mix voices and instruments and control their playback using a MIDI keyboard. Overdub from 16 digitized "sections" and play back four of them at a time. Supports advanced MIDI features such as tempo adjust and external sync. Store sounds in IFF "instrument" or "one-shot" (8SVX) files for use with other compatible programs.
SUGGESTED RETAIL PRICE: $99.95

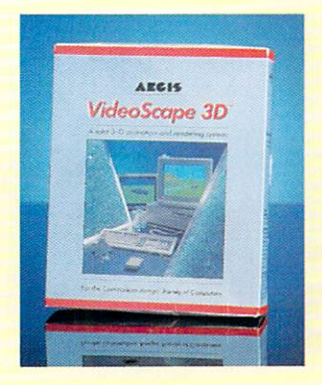
PERFECT VISION is the state of the art, real time video digitizer for use with model 1000, 500 and 2000 Amigas. Input from a color (or black and white) video camera or a VCR. Perfect Vision will digitize the image, display it in 4096 colors (camera input only), then store it as IFF for later use in compatible programs. Captures an image in 1/60 of a second — 600 times faster than the competition. Supports 320x200 and 320x400 HAM and 16-color modes.
SUGGESTED RETAIL PRICE: $219.95

Available from Amiga dealers across America. For product information and support call:

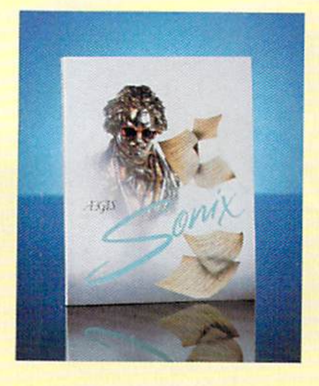


SunRize Industries
3801 Old College Road
Bryan, TX 77801
(409) 846-1311.

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PRODUCT	COMPANY	PRICE	DESCRIPTION
Apprentice Libraries	Hash Enterprises	$ 19.95	objects for Animator, other disks up to $29.95
Art Gallery I and II	Unison World	$ 29.95	clip art
Art Pak I	Aegis	$ 34.95	IFF clip art
Arts Parts #2	Electronic Arts	$ 29.95	DeluxePaint data disk
Award Maker Plus	Baudville	$ 49.95	creates awards and certificates
B-Paint	Finally Software	$ 39.95	drawing program with source code
Big Picture, The	Lightning Publishing	$ 29.95	print murals; Xerox and NEC versions-$99.95
Butcher	Eagle Tree Software	$ 37.00	HAM to hi- to lo-res conversions
City Desk Art Companion	MicroSearch	$ 29.95	200 medium-res images
D-Buddy	Digital Creations	$ 79.95	paint accesssories program
Deluxe Maps Vol. I	Computer Arts	$ 25.00	US regional and state maps, IFF
Deluxe Productions	Electronic Arts	$ 199.00	3D animation
DeluxePaint II	Electronic Arts	$ 129.95	paint program
DeluxePrint	Electronic Arts	$ 99.95	make cards, banners, etc.
DeluxePrint Art Disk #2	Electronic Arts	$ 29.95	clip art for DeluxePrint
DeluxeVideo 1.2	Electronic Arts	$ 129.95	video animation, titling and music
Desktop Artist	SunRize Industries	$ 29.95	black-and-white clip art
Digi-Paint	New Tek	$ 59.95	HAM paint package
Digital Building System	Micromaster Software	$ 299.00	CAD
Director, The	Right Answers Group	$ 69.95	animation sequencing
Doug's Math Aquarium	Seven Seas Software	$ 89.95	graphics representation of math formulas
DPaint Art & Utility Disk	Electronic Arts	$ 29.95	includes slideshow
Dynamic CAD 2.4	MicroIllusions	$ 499.95	CAD drawing program
Express Paint!	PAR Software	$ 79.95	paint program that imports text
Fonts & Borders	Unison World	$ 34.95	20 type fonts, many sizes; 20 borders
Forms in Flight	Micro Magic	$ 79.00	3D drawing and animation
Grabbit	Discovery Software	$ 29.95	screen print and save
Graphicraft	Commodore	$ 49.95	paint program
Graphics Studio, The	Accolade	$ 44.95	paint program
IntroCAD	Progressive Peripherals	$ 79.95	drawing program
JDK Images Video Fonts	PVS Publishing	$ 49.95	11 styles, 3 sizes
LogicWorks	Capilano Computer Sys.	$ 299.95	EE CAD package
Page Flipper	Hash Enterprises	$ 29.95	plays IFF pictures in ANIM standard
PCLO	SoftCircuits	$ 199.95	EE CAD
PCLO Plus	SoftCircuits	$ 499.95	EE CAD, high density
Photon Video: Cell Animator	MicroIllusions	$ 149.95	professional cell animation
Photon Video: Transport Controller	MicroIllusions	$ 299.95	drives single-frame video controller
Pixmate	Progressive Peripherals	$ 49.95	image enhancement
Plot-to-Print Converter	Hi-Tech Graphics	$ 20.00	quality output on six printers, prices to $35
Poor Man's ADO	Hash Enterprises	$ 39.95	video effects generator
Print Master Plus	Unison World	$ 49.95	print greeting cards and newsletters
Prism Plus	Impulse Inc.	$ 69.95	HAM paint program, $199 with Silver
Pro Video CG1	PVS Publishing	$ 199.95	video character generator
Pro Video CG1 Font Library	PVS Publishing	$ 99.95	2 sets, 4 styles, 3 sizes
PV Plus	PVS Publishing	$ 299.95	expanded character generator
Scheme	SoftCircuits	$ 199.95	schematic capture package
Sculpt 3D	Byte by Byte	$ 99.95	create ray-traced grapics
Seasons & Holidays	Electronic Arts	$ 29.95	DeluxePaint data
Silver	Impulse Inc.	$ 169.00	ray-trace animation
Station Manager/Character Gen.	Associated Computer Serv.	$ 295.00	professional character generator
Station Manager/Teleprompter	Associated Computer Serv.	$ 295.00	commercial quality teleprompter
Station Manager/Weather Graphics	Associated Computer Serv.	$ 295.00	create weather maps
TV*SHOW	Brown-Waugh	$ 99.95	video special effects generator
TV*TEXT	Brown-Waugh	$ 99.95	video character generator
UltraCAD	Progressive Peripherals	$ 199.95	full-scale CAD
Video Backdrops	APT Inc.	$ 19.95	background art for videos
Videoscape 3D	Aegis	$ 199.95	3D video animation
Weave-It	Joyce I. Peck	$ 69.95	create weaving patterns



PRODUCT	COMPANY	PRICE	DESCRIPTION
WindowPrint II	Computer Toolsmith	$ 34.95	screen capture and dump
X-CAD	Taurus-Impex	$ 499.00	CAD

HOME/PERSONAL FINANCE

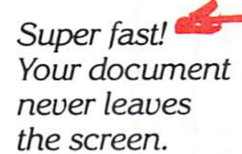
PRODUCT	COMPANY	PRICE	DESCRIPTION
2 + 2 Home Management System	ArborSoft Inc.	$ 99.00	home financial management
Ea$y Loan$ Personal	PAR Software	$ 49.95	personal loan amortizations
Financial Cookbook	Electronic Arts	$ 19.95	personal finance
Home Inventory Manager	SunSmile Software	$ 34.95	personal inventory
Investor's Advantage	Software Advantage	$ 99.95	stock analysis
MicroLawyer	Progressive Peripherals	$ 59.95	standard legal templates and forms
Money Mentor	Sedona Software	$ 95.95	personal accounting
PHASAR	Finally Software	$ 99.95	home finance
Video Cataloger	SunSmile Software	$ 34.95	keep track of video tapes

MUSIC/SOUND

PRODUCT	COMPANY	PRICE	DESCRIPTION
Animation	WaveTable Technologies	$ 18.50	non-looping sounds for graphics production
Audio Master	Aegis	$ 59.95	digitized sample editor
Bach Songbook	Dr. Tease	$ 29.00	Bach fugues and inventions
Big Dollar Synth	WaveTable Technologies	$ 18.50	samples from studio-quality synthesizer
Composer Disks (Vol 1,2,3)	WaveTable Technologies	$ 18.50	30 samples/volume for Sonix
D50 Master Editor/Librarian, The	Sound Quest	$ 160.00	edit D50 data
D50 Voices	Dr. Tease	$ 49.00	300 + sounds for the D50 editor
Deluxe Music Construction Set	Electronic Arts	$ 99.95	music editor and score printer
DNA Music	Silver Software	$ 19.95	music based upon DNA molecule
Dr. Drums	Dr. Tease	$ 29.00	MIDI drum patterns in KCS format
Dr. Keys	Dr. Tease	$ 29.00	keyboard patterns for KCS
DX II Master Editor/Librarian, The	Sound Quest	$ 175.00	DX Master plus 13 types of DX II Sys Ex data
DX Master Editor, The	Sound Quest	$ 145.00	edits DX-7, DX-9 and TX data files
DX Voices	Dr. Tease	$ 49.00	sounds for the DX-7 in DX Master format
Dynamics	Robert Shannon	$ 29.95	Deluxe Music tutorial and tools
Fractal Music	Silver Software	$ 19.95	music and graphics based upon fractal math
Grab Bag	E.C.T. Sampleware	$ 18.00	miscellaneous samples
Hot & Cool Jazz	Electronic Arts	$ 29.95	music data disk
Hot Licks	Infinity Software	$ 39.95	Casio keyboard conversion for Amiga
Instant Music	Electronic Arts	$ 49.95	play music with mouse
It's Only Rock 'N Roll	Electronic Arts	$ 29.95	Instant Music songs
KCS	Dr. Tease	$ 225.00	keyboard controlled sequencer
M for the Amiga	Intelligent Music	$ 200.00	interactive composition and performance
Master Librarian, The	Sound Quest	$ 125.00	edit Sys Ex data from MIDI equipment
Mellotron	WaveTable Technologies	$ 18.50	original Mellotron voices
Music Mouse	Opcode Systems	$ 79.95	music composition
Music Studio, The	Activision	$ 49.95	music editor

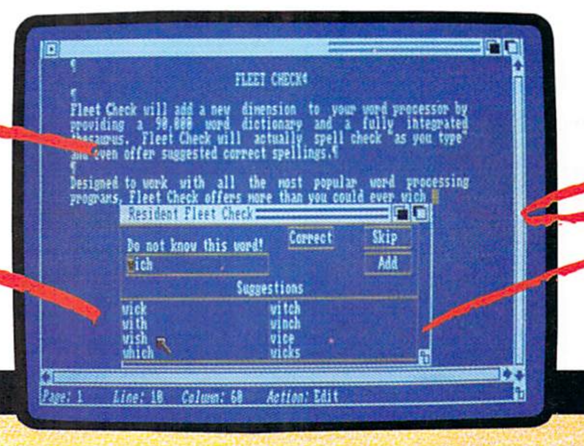
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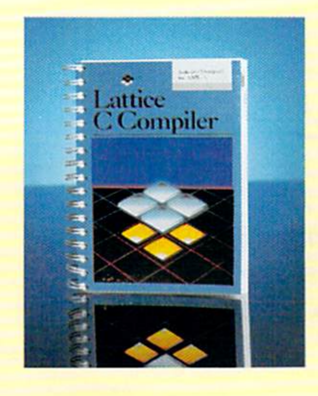
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PRODUCT	COMPANY	PRICE	DESCRIPTION
Music-X	MicroIllusions	$ 299.95	MIDI sequencer, supports SMPTE time code
Orchestral Disk	E.C.T. Sampleware	$ 18.00	orchestral IFF and Mimetics samples
Pattern Splatter	Mimetics Corp.	$ 49.00	interactive arpegiation and composition
Protein Music	Silver Software	$ 19.95	music based upon 20 amino acids
QRS Music Rolls	Micro W	$ 19.95	demo disk of sample songs
Real Brass	WaveTable Technologies	$ 18.50	brass instruments digitally recorded
Rock Disk	E.C.T. Sampleware	$ 18.00	rock samples
Sonix	Aegis	$ 79.95	synthesizer and note editor
Sound Effects Library	Karl R. Denton Assoc.	$ 99.95	six disks of digitized sounds
Sound Lab Amiga	Blank Software	$ 299.95	create and edit sound samples
SoundScape	Mimetics Corp.	$ 149.00	MIDI sequencer, music operating environment
Studio Magic	SunRize Industries	$ 99.95	edit digitized sounds
Symphony Library	Speech Systems	$ 39.95	eight disks, $39.95 ea., 100 + SMUS songs
Symphony Songs	Speech Systems	$ 24.95	45–50 minutes of sampled music in IFF format
Texture	Magnetic Music	$ 299.00	MIDI sequencer; needs MIF-AMG, Roland MPU-401
Utilities I	Mimetics Corp.	$ 49.00	SoundScape utilities
Waveform Easel	Silver Software	$ 19.95	design synthesized sounds, written in Basic
Xpress Patch-FM	Digitools	$ 24.95	interface to Yamaha synthesizers

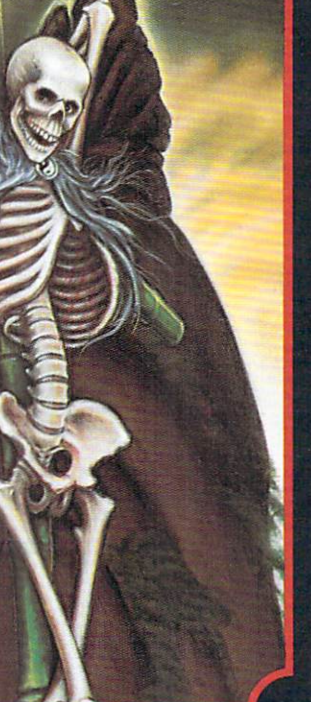
PROGRAMMING

PRODUCT	COMPANY	PRICE	DESCRIPTION
3D Graphics Library	True BASIC Inc.	$ 49.95	True BASIC libraries
A/C Basic	Absoft	$ 195.00	Amiga Basic compiler
A/C Fortran	Absoft	$ 295.00	Fortran 77 compiler
Advanced String Library	True BASIC Inc.	$ 49.95	True BASIC libraries
AiRT Programming Language	PDJ Software	$ 64.95	icon-based programming language
Amiga Basic Companion	Omega Star Software	$ 34.95	disk-based Amiga Basic manual
AmigaView	ACDA Corp.	$ 79.95	Intuition and graphics object libraries
APL 68000	Spencer Organization	$ 99.00	APL for the Amiga
Applications Services Interface	Pecan Software Systems	$ 59.95	works with The Power System
AssemPro	Abacus	$ 99.95	assembly language development system
Aztec C68K/am-c	Manx Software Systems	$ 499.00	commercial C development system
Aztec C68K/am-d	Manx Software Systems	$ 299.00	C development system
Aztec C68K/am-p	Manx Software Systems	$ 199.00	C compiler
Basic	Pecan Software Systems	$ 79.95	BASIC for The Power System
Benchmark Modula-2	Avant-Garde	$ 299.00	Turbo-like Modula-2
Benchmark Mosula-2 Libraries	Avant-Garde	$ 99.00	IFF, other libraries for Modula-2
C Compiler 4.0	Lattice	$ 225.00	standard Amiga compiler
C Cross Reference Utility	MetaSoft Limited	$ 49.95	development utility
C.A.P.E. 68K	Invotronics	$ 89.95	Complete Assembler Programming Environment
Cambridge LISP	Metacomco	$ 199.95	AI language
Configuration Tools	Pecan Software Systems	$ 39.95	works with The Power System
Conversation With A Computer	Jenday Software	$ 34.50	Amiga Basic demos and source code
Cross Assembler, Amiga Ext. Port	Quelo Inc.	$ 179.00	transfer code
Cross Assembler, IBM to Amiga	Quelo Inc.	$ 129.00	transfer code
Cross Assembler, Source Code	Quelo Inc.	$3,500.00	minimal
Cross Assembler, Source Code	Quelo Inc.	$5,500.00	full
dBC III Library	Lattice	$ 150.00	program stand-alone dBase applications
Developer's Toolkit	True BASIC Inc.	$ 49.95	Amiga-specific True BASIC libraries
Disk Recovery Toolkit	Pecan Software Systems	$ 39.95	works with The Power System
Example Programs	TDI Software Inc.	$ 24.95	examples of Modula-2 code
Explorer, The	Interactive Analytic Node	$ 49.95	debugging monitor

From Origin, creators of the Ultima™ series, comes a new dimension in fantasy role-playing

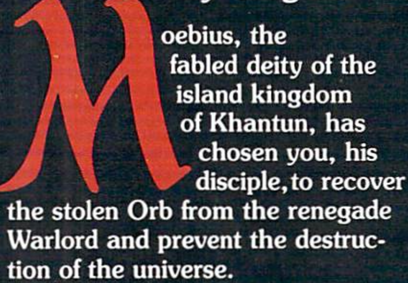
MOEBIUS

THE ORB OF CELESTIAL HARMONY



A danger-filled adventure through a complex and colorful Oriental world of magic, mysticism and intrigue.
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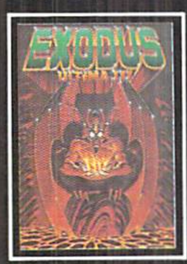


Moebius, the fabled deity of the island kingdom of Khantun, has chosen you, his disciple, to recover the stolen Orb from the renegade Warlord and prevent the destruction of the universe.

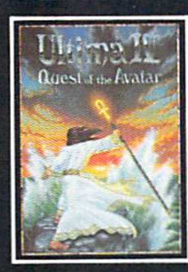
You will journey through the ascending planes of Earth, Water, Air and Fire. At each level your challenges increase in difficulty, demanding greater courage and cunning. All of your martial arts skills will be required to survive the ninja-like assassins who seek to foil your quest. Sword-wielding rebel guards will test your blade every step of the way. And watch out for wild beasts that stalk the forests!

Local villagers can help, but beware—the wrong approach will frighten them away, leaving you in a world where starvation looms ever-present. Wise use of magical charms, prayers and fireballs is essential in reaching the final confrontation with the treacherous Warlord—where victory brings recovery of the long-sought Orb of Celestial Harmony. Good luck!

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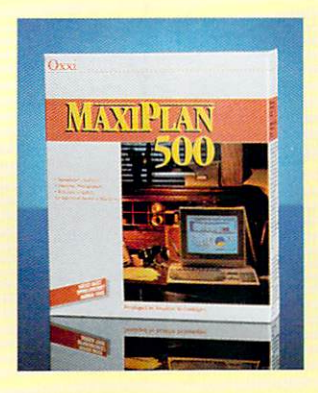


AUTODUEL™ is a futuristic, fast-paced strategy role-playing game where the right of way goes to the biggest guns.



OGRE™ is a strategy game fought on the nuclear battlefield of tomorrow as an inhuman juggernaut Cybertank battles conventional forces.

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PRODUCT	COMPANY	PRICE	DESCRIPTION
File Tools	Sistemas Delta	$ 29.95	True BASIC libraries, includes source code
Fortran 020	Absoft	$ 495.00	Fortran 77 for the 68020
Invotools	Invotronics	$ 69.95	Intuition enhancements and subroutines
ISO Pascal	Metacomco	$ 99.95	Pascal compiler
J-Forth	Delta Reseach	$ 99.95	Forth 83 standard
Key to C (Version 2.02)	Data Research Processing	$ 34.95	linkable C extensions
Lint for the Amiga	Gimpel Software	$ 98.00	C diagnostic utility
MacLibrary	Lattice	$ 100.00	Amiga calls that emulate Mac Toolkit
Macro Asembler	Metacomco	$ 99.95	Amiga 68000 macro assembler
Make Utility	Lattice	$ 125.00	development tool
Metascope: The Debugger	Metadigm Inc.	$ 95.00	examine and change executable code
Metascribe: The Editor	Metadigm Inc.	$ 85.00	programmer's editor
Metatools I	Metadigm Inc.	$ 69.95	Unix-like programming tools
Modula-2	TDI Software Inc.	$ 299.95	commercial version
Modula-2	TDI Software Inc.	$ 149.95	developer's version
Modula-2	TDI Software Inc.	$ 99.95	compiler
Modula-2	Pecan Software Systems	$ 79.95	compiler for The Power System
MS DOS-Amiga Cross Compiler	Lattice	$ 500.00	includes C compiler and debugger
Multi-Forth	Creative Solutions Inc.	$ 89.00	Forth for Amiga
Native Assembler	Quelo Inc.	$ 99.00	68020-compatible
Panel	Lattice	$ 195.00	create custom screens
Pascal	Pecan Software Systems	$ 99.95	UCSD Pascal compiler
PDQ Pascal	Pecan Software Systems	$ 69.95	introductory UCSD Pascal
Power System, The	Pecan Software Systems	$ 99.95	development system and compiler of your choice
Power Windows II	Invotronics	$ 89.95	C progamming Intuition utility
PowerScope	Invotronics	$ 89.95	symbolic structure degugger
Print Spooler	Pecan Software Systems	$ 39.95	works with The Power System
Professional Pack	Pecan Software Systems	$ 199.95	All the Power System utilities
Program Analysis Toolkit	Pecan Software Systems	$ 59.95	works with The Power System
Runtime Package	True BASIC Inc.	$ 49.95	produces stand-alone True BASIC programs
Screen Editor	Lattice	$ 100.00	programmer's editor
Screen Mapper	Northwest Machine Spec.	$ 89.95	programming utility
Softworks Basic	Softworks	$ 295.00	BASIC language
Sorting and Searching	True BASIC Inc.	$ 49.95	True BASIC libraries
Symbolic Debugger	Pecan Software Systems	$ 59.95	works with The Power System
The Amiga Structure Automator	Future Computer	$ 49.95	computer-aided software design
Text Utilities	Lattice	$ 75.00	C programming utility
Toolkit	Metacomco	$ 49.95	disassembler, MAKE, AUX CLI
True BASIC Language System	True BASIC Inc.	$ 99.95	structured BASIC language system
UBZ Forth	UBZ Software	$ 85.00	FORTH-83 compatible
User Interface Library	Sistemas Delta	$ 29.95	True BASIC libraries, includes source code

SPREADSHEETS

PRODUCT	COMPANY	PRICE	DESCRIPTION
Analyze!	Micro-Systems Software	$ 149.95	graphs
Haicalc	Haitex	$ 59.95	Intuition-based, print macros, graphs
Logistix	Progressive Peripherals	$ 149.95	spreadsheet and project planner
MaxiPlan 500	Oxxi Inc.	$ 149.00	MaxiPlan for the Amiga 500
MaxiPlan Plus	Oxxi Inc.	$ 199.00	graphics, macros
VIP Professional	ISD Marketing	$ 149.95	Lotus 1-2-3, Version 1A work-alike

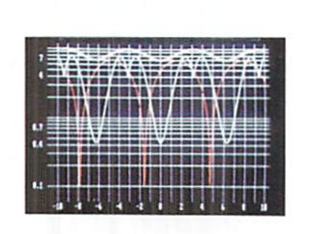


Descartes!

POWERFUL MATH RELATION GRAPHER!

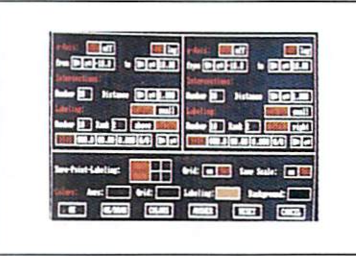
Brings mathematical relationships, simple and complex, into vivid color. IFF compatible, so results can be used with paint programs and desktop publishing.

The program René would have written!



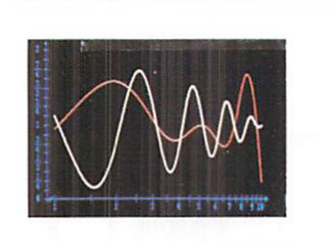
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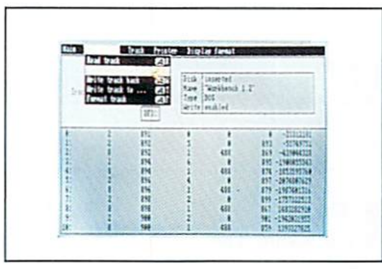


Holmes!

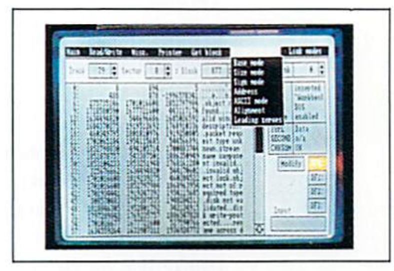
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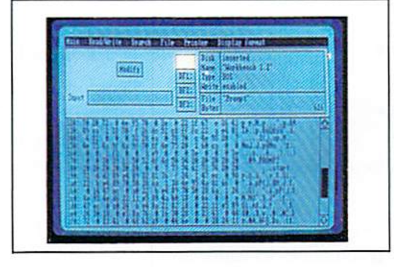
Sherlock wouldn't need Watson, if he had this program!



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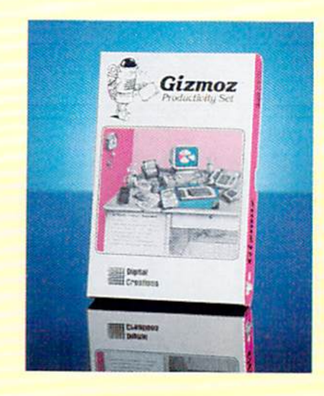


TELECOMMUNICATIONS

PRODUCT	COMPANY	PRICE	DESCRIPTION
A-Talk	Felsina Software	$ 49.95	telecommunications and terminal emulation
A-Talk Plus	Felsina Software	$ 79.95	includes Tektronics emulation
Amiga Kermit and Compuserve	TDI Software Inc.	$ 29.95	Kermit protocol and $50 of Compuserve time
AmigaTerm	Commodore	$ 49.95	simple telecommunications
BBS-PC!	Micro-Systems Software	$ 99.95	bulletin board system
Diga!	Aegis	$ 79.95	telecommunications with Doubletalk
MacroModem	Kent Eng. and Design	$ 69.95	telecommunications with macros
Middleman	Benaiah Computer Products	$ 59.95	VT100 emulation, mimics keypad
Middleman II	Benaiah Computer Products	$ 149.95	VT100, Tektronics 4105, maps keypad
Online!	Micro-Systems Software	$ 69.95	telecommunications
SKE Term	SKE Software	$ 49.95	terminal package

UTILITIES

PRODUCT	COMPANY	PRICE	DESCRIPTION
64 Emulator, The	Ready Soft	$ 39.95	emulates C-64
64 Emulator with Cable, The	Ready Soft	$ 59.95	emulator with cable for C-64 peripherals
Amiga Editor	TDI Software Inc.	$ 49.95	text editor and source code
Amiga Plot	Tychon Technologies	?	equation plotter
AmigaDOS Express	Bantam Software	$ 29.95	disk-based AmigaDOS manual
Amnix	Discovery Software	$ 49.95	Unix-like AmigaDOS shell
ATI-Link	Lightning Publishing	$ 99.95	IFF to Targa conversion
BOBshop	Revolution Software	$ 49.95	create and edit GELs
Calligrapher, The	Inter/Active Softworks	$ 100.00	Colorfont design package
CLImate	Progressive Peripherals	$ 39.95	access AmigaDOS from Workbench
DBX Translator	Desktop AI	$ 350.00	DBase programs to C
DBX Translator Libraries	Desktop AI	$ 200.00	DBX libraries
DBX Translator Source	Desktop AI	$1,500.00	source code for Translator and libraries
DBX Translator w/libraries	Desktop AI	$ 550.00	DBX Translator and libraries
DeluxeHelp	RGB Video Creations	$ 24.95	DeluxePaint utility
DeluxeHelp for DeluxePaint II	RGB Video Creations	$ 34.95	DeluxePaint II help
DeluxeHelp for Digipaint	RGB Video Creations	$ 34.95	DigiPaint utility
Demonstrator, The	Meridian Software Inc.	$ 34.95	automate Amiga demos
DigiScope	ACDA Corp.	$ 79.95	digital oscilliscope emulation
Digital Link	Digital Creations	$ 69.95	file transfer: Amiga, Mac, MS DOS
Dimmer!	PAR Software	$ 19.95	dim your screen
Disk 2 Disk	Central Coast Software	$ 49.95	file transfer, C64/128
DiskPro +	PAR Software	$ 29.95	file compression and backup utility
DiskWorks	Discovery Software	$ 89.95	Norton-like disk utilities
Dos 2 Dos	Central Coast Software	$ 55.00	file transfer-MS DOS and Atari ST
Doug's Color Commander	Seven Seas Software	$ 29.95	clone Doug's interface to other programs
DX-16	Discovery Software	$ 49.95	HP-16C calculator emulator
EQPlot	Scientific Software	$ 35.00	equation plotter
ES-5C Programmable Sci Calculator	Emusoft Corp.	$ 19.95	similar to HP-15C
Expert System Kit	Interactive Analytic Node	$ 69.95	tool-kit, interface with other OS
FACC II	ASDG	$ 34.95	disk performance enhancer
FastFonts	Microsmiths	$ 29.95	speeds up text displays
Flipside!	Micro-Systems Software	$ 59.95	prints spreadsheets sideways
Flow	New Horizons Software	$ 99.95	outline processor
Font-Works	Associated Computer Serv.	$ 99.95	scans IFF images to produce fonts
FontSet 1	The Gold Disk	$ 34.95	fonts package
Gizmoz	Digital Creations	$ 69.95	desk accessories

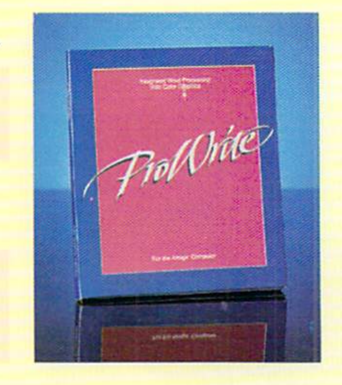


PRODUCT	COMPANY	PRICE	DESCRIPTION
HexDump	Northwest Machine	$ 19.95	hex dump utility
I.C.E.	Quicksilver Software	$ 79.95	calculator construction and function plotting
ICONizer	Royal Software	$ 29.95	create custom icons
Interchange	Syndesis	$ 49.95	converts objects between 3D modeling programs
Jet Set	C Ltd.	$ 39.95	driver for HP LaserJet Plus
Jet Set Font Sets	C Ltd.	$ 49.95	fonts for Jet Set, price up to $99.95
KickWork	Amigo Business Computers	$ 39.95	one disk Kickstart/Workbench
Laser Fonts 1	S. Anthony Studios	$ 39.95	fonts for LaserWriter
Laser Utilities 1	S. Anthony Studios	$ 39.95	IFF to Postscript
LaserUp!	S. Anthony Studios	$ 79.95	print screen to LaserWriter
LaserUp! Plot	S. Anthony Studios	$ 49.95	Aegis Draw files to PostScript
LTR	MetaSoft Limited	$ 59.95	print spooler
MagiCode	Magic Circle	$ 30.00	encrypts computer data
Marauder II	Discovery Software	$ 39.95	disk backup
Math-Amation	Taurus-Impex	$ 79.95	quantity processor
MergeMaster	Megatronics	$ 24.95	mail-merge program
Micro-Shell	MetaSoft Limited	$ 79.95	enhanced AmigaDOS interface
Mirror Hacker Package, The	Compumed	$ 49.95	disk analysis
Mirror, The	Compumed	$ 49.95	disk copy
Newsletter Fonts Vol 1	Inter/Active Softworks	$ 30.00	120 Amiga fonts
Outline!	PAR Software	$ 49.95	outline processor
PED	MicroDimensions	$ 129.95	programmer's text editor
Printer Drivers	Tychon Technologies	$ 39.95	PJ-1080A, Tandy CGP220, Quadram QJ9000; TY100-$69
Professional Text Engine	Zirkonics Corp	$ 79.95	text editor with macros
Quarterback	Central Coast Software	$ 69.95	hard disk to floppy backup
Shell	Metacomco	$ 69.95	Unix-like AmigaDOS interface
Software Enhancer	Commodore	$ 14.95	DOS 1.2 for Amiga 1000
Soundshop	Revolution Software	$ 49.95	create and edit waveforms
Studio Fonts Vol 1	Inter/Active Softworks	$ 35.00	Colorfonts and standard fonts
Super Parameters	Utilities Unlimited	$ 29.95	disk-backup utility
System Monitor	Zen Software	$ 49.95	monitors memory usage, other parameters
TxEd	Microsmiths	$ 39.95	programmer's text editor
Tychon Utilities	Tychon Technologies	$ 49.95	disk utilities
ZING!	Meridian Software Inc.	$ 79.95	access AmigaDOS from Workbench
ZING!Keys	Meridian Software Inc.	$ 49.95	macro utility
Zuma Fonts I	Brown-Waugh	$ 34.95	fonts package
Zuma Fonts II	Brown-Waugh	$ 34.95	fonts package
Zuma Fonts III	Brown-Waugh	$ 34.95	fonts package

WORD PROCESSING

PRODUCT	COMPANY	PRICE	DESCRIPTION
BeckerText	Abacus	$ 150.00	columns, dictionary, calculations
DesignText	Designtech Business Systems	$ 79.00	speller, data base, mail merge, graphics
Dynamic Word	MicroIllusions	$ 199.95	spell checker, thesaurus, reads WordPerfect files
Eartype	Jumpdisk	$ 3.00	word processor for the seeing-impaired
GoldSpell	The Gold Disk	$ 44.95	spelling checker
LexCheck	Complete Data Automation	$ 29.95	spelling checker
LPD Writer	Digital Solutions	$ 119.95	mail merge, spelling checker
Nancy	Finally Software	$ 49.95	spelling checker
PRECISELY	Central Coast Software	$ 79.95	macros, mail merge, reads C-64 wp files
Promise	The Other Guys	$ 49.95	spelling checker
ProWrite	New Horizons Software	$ 124.95	multiple fonts and colors, imports graphics
QuickMerge I	Associated Computer Serv.	$ 59.95	mail merge with Textcraft

PRODUCT	COMPANY	PRICE	DESCRIPTION
Reason	The Other Guys	**$ 395.00**	proofreading and style analysis
Scribble!	Micro-Systems Software	**$ 99.95**	mail merge, spelling checker
Spellcraft	Megatronics	**$ 24.95**	spelling checker
Talker	Finally Software	**$ 69.95**	speech by char., word, sentence, paragraph
Textcraft Plus	Commodore	**$ 109.95**	mouse driven, mail merge
TextPro	Abacus	**$ 79.95**	word processor with graphics
VizaWrite	Progressive Peripherals	**$ 149.95**	imports graphics, mulitple columns
WordPerfect	WordPerfect Corp.	**$ 395.00**	includes spelling checker, thesaurus, macros
Wordwright	RTL Programming Aids	**$ 75.00**	mail merge, outliner
Write and File	Brown-Waugh	**$ 99.95**	combines word processor and database



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2201 Kalamazoo SE
PO Box 7219
Grand Rapids, MI 49510
616/241-5510

Absoft
2781 Bond St.
Auburn Hills, MI 48057
313/853-0050

Access Software
2561 S 1560 W
Wood Cross, UT 84087
801/298-9077
800/824-2549

Accolade
20813 Stevens Creek Blvd.
Cupertino, CA 95014
408/446-5757

ACDA Corp.
220 Belle Meade Ave.
Setauket, NY 11733
516/689-7722

Activision
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Mountain View, CA 94039
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Aegis Development
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Suite 277
Santa Monica, CA 90403
213/392-9972

American Software Distributers
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Northport, NY 11768
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Penfield, NY 14526
716/385-6120
800/828-6573

ASDG
280 River Rd. Suite 54A
Piscataway, NJ 08854
201/563-0529

Associated Computer Services
1306 East Sunshine
Springfield, MO 65804
417/887-7373

Astrosoft
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Santa Barbara, CA 93102

Avant-Garde
2213 Woodburn
Plano, TX 75075
214/964-0260

Bantam Software
Bantam Electronic Publishing
666 Fifth Ave.
New York, NY 10103
212/765-6500

Baudville
5380 52nd St. SE
Grand Rapids, MI 49508
616/957-3036

Benaiah Computer Products Inc.
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Huntsville, AL 35815
205/881-1110
800/622-7462

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Bldg. D
Tigard, OR 97224
503/684-6655
800/368-BEST

Bethesda Softworks
distributed by Electronic Arts

Blank Software
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San Francisco, CA 94103
415/863-9224

Brown-Wagh Associates
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Suite 210
Los Gatos, CA 95030
408/395-3838

Byte By Byte
Arboretum Plaza II
9442 Capitol of Texas Hwy. N
Suite 150
Austin, TX 78759
512/343-4357

C Ltd
723 East Skinner
Witchita, KS 67211
316/267-3807

Capilano Computer Systems
PO Box 86971
N. Vancouver, BC
Canada V7L 4P6
604/669-6343

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268 Bowie Dr.
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805/528-4906

Chang Labs
5300 Stevens Creek Rd.
San Jose, CA 95129
408/246-8020

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609/667-7695

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301/924-5509

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617/790-1994

Commodore Business Machines
1200 Wilson Dr.
West Chester, PA 19380
215/431-9100

Complete Data Automation Inc.
PO Box 1052
Yreka, CA 96097
916/842-3431

Continued on p. 60



Call for Authors

The Taoist monk and the student sat beneath a naked cherry tree, its summer leaves long fallen. Gray sky and chill wind, mist more than rain dampened the ground, dampened their silk robes, numbed their posteriors. The student fidgeted while the monk, eyes half closed, enjoyed the sensations. Cold buns are, after all, another element of existence.

After a time, the student grew bored, and thinking that the monk had fallen asleep, pulled a magazine out of his robes and began to read. The student, trying very hard to keep "the uncut stone" in mind while he read, soon thought he had encountered a deviation from the Way. This was not uncommon. Most things done by Westerners were more of an imposition on life than a following of life. But this instance was more annoying than others, and the student snorted his disdain. The monk, who really had fallen asleep, woke at the sound and turned to the student.

"Master," said the youth, "I know we cannot be responsible for the misdirections of others, but this magazine bothers me."

"Oh?" said the Master, taking the magazine from the lad. He began to flip carefully through the pages.

"Yes," said the student. "I have a subscription, and for the most part, I find the magazine useful. For a magazine, it is an unusually enligthened publication. But some of these articles seem to have as little substance as the clouds that drift over the summer garden."

"Did you read this interview with Andy Warhol?" asked the monk.

"That is what I mean! I wish to understand my Amiga like I wish to understand life. You teach me about life and the magazine is supposed to teach me about the Amiga—not MTV, Warhol, or what might happen sometime in the future!"

The monk thought for a moment, then motioned the student to follow him. Together they walked the miles back to the temple where the monk lived. The student followed the monk down long halls where he had never dared go before. Finally, they entered the monk's humble cell. It was stark, cold and simple, but on the floor in the very center of the room was an Amiga computer. The monk knelt before the computer and booted up a word processing file. It was an article. "Zen and the CLI" was the title. It was neat, double spaced, and included the monk's name, address, phone number and Social Security number. As the student read, the monk pulled out a copy of the *AmigaWorld* author's guidelines.

"I sent a self-addressed stamped envelope to:

AmigaWorld
Submissions
80 Elm Street
Peterborough, NH 03458

and as night follows day, I received the guidelines. When I finish the article, I will send it to the same address and wait patiently six to eight weeks for a reply.

"If you feel that the content of *AmigaWorld* deviates from the true path to complete understanding, then don't just complain. The sharing of knowledge so that others may benefit is but another step on the endless road. Just because one enjoys life for what it is does not mean that one cannot take a hand in its future form."

The student, recognizing wisdom when he heard it, bowed deeply before the monk.

Outside, in the still temple courtyard, the rain had stopped.

In the wind were the faint echoes of one hand clapping.

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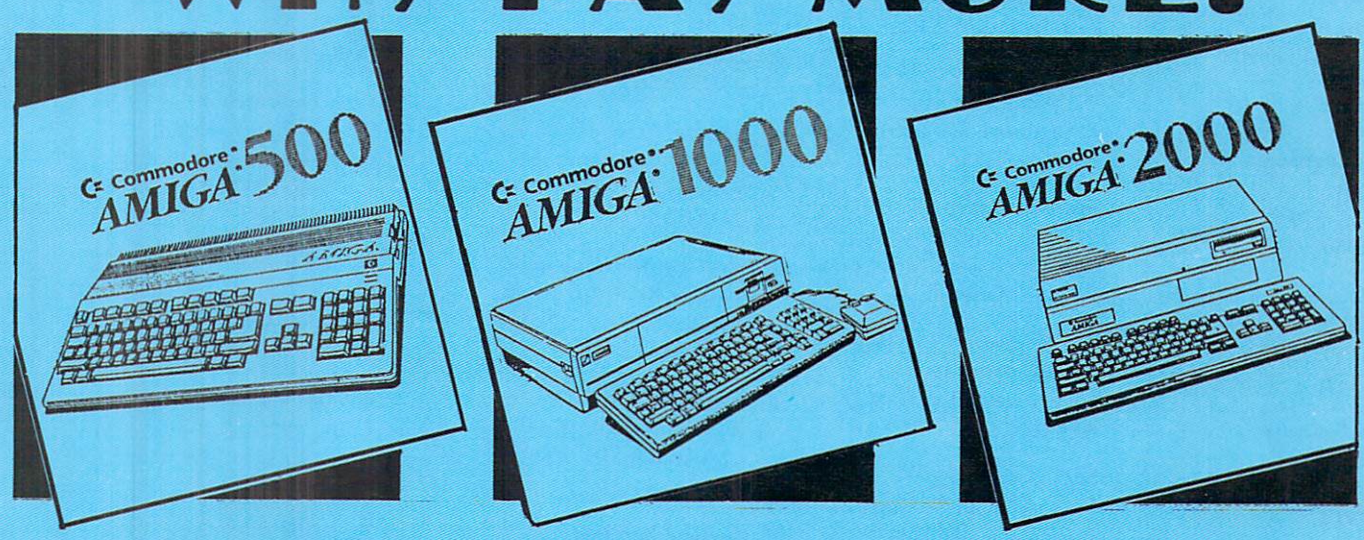
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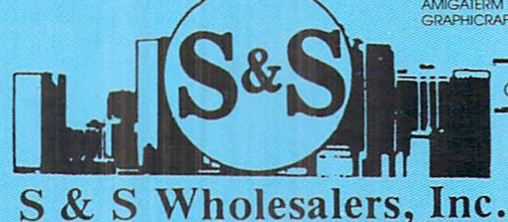


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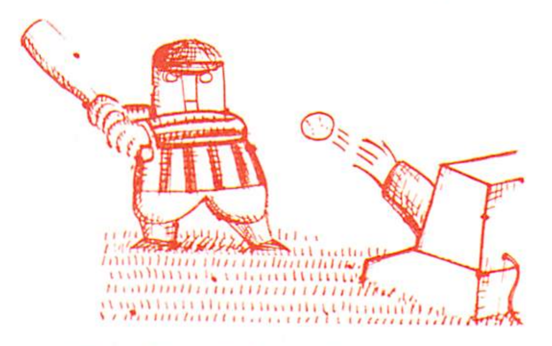
1987 *AmigaWorld* Editors' Choice Awards

HERE WE ARE AGAIN with another round of end-of-the-year fame, fortune, fun and frolic—it's the *AmigaWorld* Editors' Choice Awards. This has been a tradition around here for years and years (well, actually this is only the second year, but traditions have to start somewhere). In case you missed it last year, the Editors' Choice Awards are given to products that just seem like they ought to get an award. Sometimes we thought they were the best, the most influential, the most important to the Amiga community, the most fun or those backed by the best bribes from manufacturers.

The decision-making process was very complex and not even close to scientific. It involved voting, counting, more voting, calls for recounts when names of dead editors appeared on the registration lists, accusations of ballot-stuffing, graft, under-the-counter deals cut in smokey rooms with labor leaders, mud-slinging, smear campaigns and everything else that goes along with the democratic system. (We took our cue from that monumental work on the subtleties of electoral politics, *One Man, One Vote: Creative Interpretations and Variations*, by Ferdinand Marcos.) This year the process got even sillier.

Anyway, here are the products we think deserve special mention for 1987. If you think that we left something out that should have won an award, you're probably right. In fact, this is the last time these awards will be decided by the editorial staff. Next year, you get to pick the winners as the Editors' Choice Awards become the Readers' Choice Awards. So, for the last time, here are our picks.

—GW

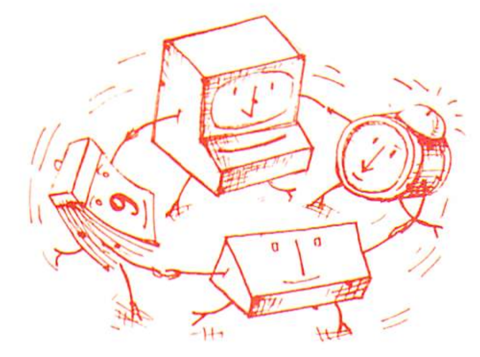


The How Many Votes Can You Stuff in One Box Award

Earl Weaver Baseball from Electronic Arts. This game is our all-time favorite best use of an Amiga software-hardware-anything-you-can-think-of product ever created by humans during this century. It beats sliced bread by a loaf, Saran Wrap can't touch it, the paper clip pales by comparison, penicillin is just another mold . . . well, you get the idea. The staff *really* liked Earl Weaver Baseball and wanted it to win twice (from our staff of five it received 162 votes).

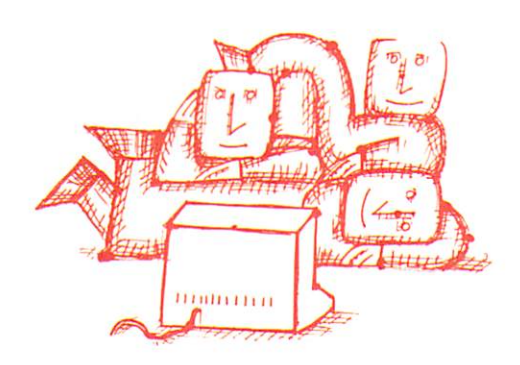
The Word Processor We've All Been Waiting For Award

WordPerfect from WordPerfect Corp. Everyone has been waiting for a great word processor for the Amiga and it's finally arrived. WordPerfect delivers just about everything that anyone can ask of a word processor. Unless the folks at WordPerfect Corp. go crazy and decide to end their policy of annual updates, this program will be the best Amiga word processor for a long, long time.



The Best Thingamajig Award

TimeSaver from C Ltd. More than just a clock/calendar, better than auto-config, TimeSaver is a nifty little device that connects between the keyboard and the Amiga. It not only sets the time and date automatically, but also lets you define keyboard macros and other good stuff. Our Tech Editor could live without his expanded memory or his hard drive, but don't try to take away his TimeSaver.



The Three Best Ways To Avoid Doing Any Work Award

Silent Service from MicroProse, ***Shanghai*** from Activision and ***Leader Board*** from Access Software Inc. These three games can be blamed for all the typos you've found in *AmigaWorld* over the past three or four issues. We were going to go monthly back in May but spent too much time on the links, under water and clicking mah-jongg tiles. Current high score on Silent Service around the office is 108,000 tons (with two WGSCs on staff); 17 under par is the standard to beat on Leader Board; and the greatest number of times "seeing the dragon" (three or four hundred) belongs to an editor who plans to name his first-born child after Shanghai author Brodie Lockard.

The Best Company Name Award

Emusoft. Nothing more needs to be said.

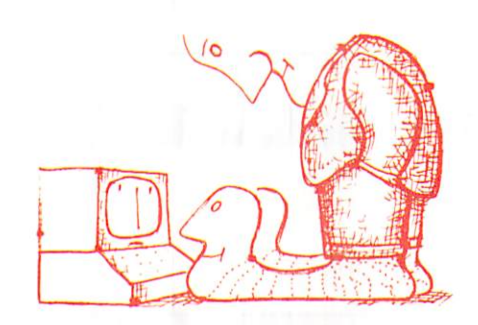
The Some People Have a Way With Words and Others Not Have Way Award

Nord and Bert Couldn't Make Head or Tail of It from Infocom. Cliches, puns, spoonerisms

and absurd word play make this game quite chucklefull.

The Best Games to Show Off Your Amiga With Award

Anything from Master Designer Software (distributed by Mindscape). ***Defender of the Crown, SDI, Sinbad and the Throne of the Falcon.*** Great Amiga graphics, animation and music. Game play isn't bad either. If you want to make your Mac buddies envious, just boot up one of these and snicker.



The Knock Our Socks Off Again Award

Digi-Paint from New Tek. This is the second major product from New Tek in the Amiga line. Last year the company came out with the Digi-View digitizer at an astounding price while everyone was waiting for a digitizer-that-shall-remain-nameless. Digi-View is certainly a cornerstone Amiga product—can you imagine a world without it?—and Digi-Paint, a $59.95 paint program that uses the Amiga's 4,096-color Hold-and-Modify mode, could very well wind up in that same exalted category.

The Best Award

B.E.S.T. Business Management from B.E.S.T. Inc.. They claimed to have the best accounting software for the Amiga, it looked like the best, and everyone we've talked to loves it the best, so although I'm not an accountant, I guess that B.E.S.T. from B.E.S.T. is . . . you figure it out.



The Managing Editor's Best Friend Award

GoldSpell from Gold Disk. The reason that GoldSpell wins this award is because our Editor-in-Chief, who has been known to misspell two-letter words, uses it before turning in articles to the Managing Editor to be edited.

The Best Product That Only a Tech Editor Could Love Award

A/C Basic from Absoft. He was very adamant about this BASIC compiler winning an award, but when he tried to explain why it was so great people started leaving the room. So we have to trust his judgement. It must be a wonderful product.

"Why is A/C Basic getting an award, Bob?"

"It's a good compiler."

"OK, I guess."



The If You Don't Like It Change It Award

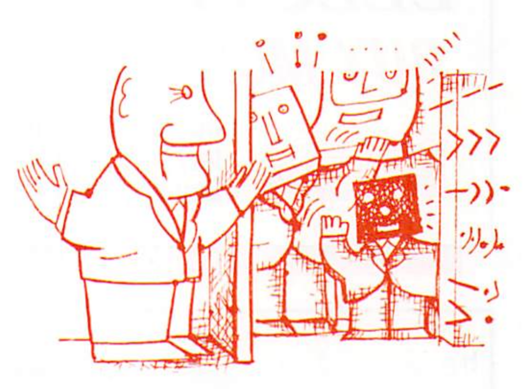
The Calligrapher from Inter/Active Software. A font editor that's pretty slick, this program does the job, has a bunch of nice features, and, if you are a font fanatic, could save you a lot of money.

The What a Neat Idea Award

Microfiche Filer from Software Visions. A database that is set up like a microfiche file. Easy, simple, obvious. A neat idea.

The Let's Get the Gang Together, Rent a Barn and Put Out a Magazine Award

City Desk from MicroSearch. Our reviewer thought that City Desk was the best desktop publishing package available for the Amiga, and we could see no reason to doubt him.



The Victims of Our Lead Time Award

This one goes to a group of great looking products that hadn't quite made it to market before the deadline for this issue. High on the list is the amazing video hardware coming out of ***Mimetics***, and ***Professional Page***, a monster desktop publishing program from Gold Disk. These products will push back the frontiers of desktop video and desktop publishing. Of course, at the top of the list is the ***Amiga 2000***, which, although delayed, will be out in the fourth quarter. Together with all the hardware and software products designed to take advantage of the A2000's flexibility, this expandable Amiga will go where no personal computer has gone before.■

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Amigas in the Performing Arts

Amigas are receiving top billing in a number of stage, screen and musical productions, so let's preview some of AmigaWorld*'s award-winning shows.*



WE'VE NOTICED LATELY that Amigas are turning up quite frequently in the credits for performing arts productions. Concerts, movies, plays, television shows—Amigas are moving center stage as a vital, and very visible, part of the show in so many different media.

As a result, we've had our reporters out tracking down some of these performing Amigas to let our readers know what their favorite computer has been up to. In keeping with the theme of several of our other pieces in this end-of-the-year issue (see "1987 Editors' Choice Awards" for some prizes based on some of our favorite selections), we have, in fact, decided to make some additional awards here in the performing arts.

So get the tux out of mothballs and let the drums roll. We've got a Tony for a team of creative Amigas in a college theater program in Illinois. A Grammy goes to those hard-driving, rock 'n rolling Amigas backing up the band Oingo Boingo. And we award an Emmy to some techie-type Amigas that help bring us TV's inimitable Max Headroom. Sorry, no Oscar this time around—we're going to defer on that until we check out a rumor about a new movie featuring an Amiga-digitized suave southern ladies' man who turns high-tech Mideast terrorist-fighter . . . you guessed it, RAMbeau! ►



ILLUSTRATED BY ALEXA GRACE

Fiery Finales and Ghostly Visages



The AW Tony

You may be surprised to learn that the cutting edge of the computer movement in theater is not to be found on Broadway or even off-Broadway; nor is it in Chicago, San Francisco, Louisville, Minneapolis or any of the other leading regional theater centers throughout the country. For our "Tony" award we go to a small town in northern Illinois called Palatine, site of the campus of William Rainey Harper College.

AmigaWorld *spoke recently with Michael Brown, a member of Harper's Art Department who teaches stagecraft and is the set designer for the college's theater productions. Brown showed us a team of three Amigas hard at work designing sets, assembling slide-show projections and creating a host of special effects for the variety of productions during Harper's 1987 season. From non-traditional set designs to explosive multimedia finales to computer-generated ghost images, Brown's Amigas were earning their M.F.A. degrees with honors.*

We pick up the story from Professor Brown as he discusses first Harper's recently-concluded production of Beth Henley's (of Crimes of the Heart *fame)* The Miss Firecracker Contest. . .

By Michael Brown

Computers in the design room? . . . we had talked about it for years . . . it sounded very exciting . . . but still we were all a bit skeptical . . . all that programming . . . how would we use them? . . . what would we do with the images? In any event, we took the plunge and ordered three Amigas. When they arrived in the summer of 1986, we started work with several art students who had completed basic studio courses. Using programs such as DeluxePaint and Aegis Images, the students began to experiment. We added a Kurta Mouse Pen and their scope expanded. We needed a project that would put them and the Amigas to the test.

Beth Henley provided our challenge. *The Miss Firecracker Contest* was the college's next production, and as set designer for the show, I began to see the possibilities take shape. Could we use the Amiga's visual design ability as a design and production tool for the next set? The director, John Muchmore, and I agreed—a non-traditional set design could work for this play. The Amiga could be used in three basic areas of the production.

As the designer, I would use the Amiga to design the basic set, create details and make color decisions. Two art students, Matt Mayfield amd Cheryl Hawman, would use Amigas to create images for slides to be projected on stage. They would introduce each act and scene and create the "Fourth of July Firecracker Display" finale called for in the script.

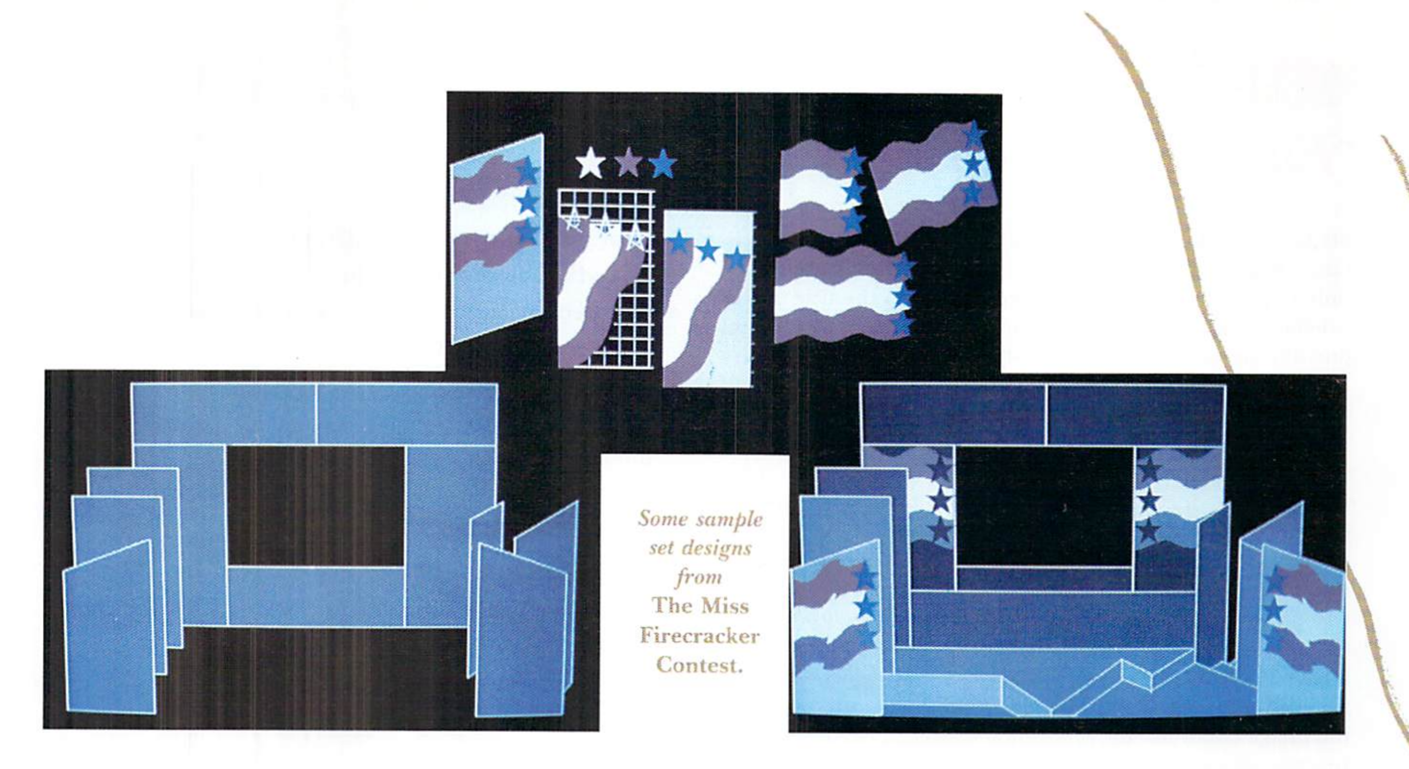
DeluxePaint became our basic tool. As designers and artists, we were comfortable with its paint box and drawing style. The combination of "freehand" and "mechanical drawing" tools coincided nicely with the students' fundamental studio training. I started by designing a basic acting area of flats, platforms and steps that would be used for all scenes in the play. Behind the playing area, I designed an 8′ × 12′ screen to receive the slide projection images. Using the grid system in DeluxePaint, I was able to establish size and proportion relationships based on standard flat and platform sizes in our inventory. In a short period of time, I had a "picture" of the set for the director and myself to discuss. Possible variations to the initial concept were examined as we sat in front of the monitor.

And the Rockets' Red (Blue? Green? Yellow?) Glare . . .

Soon the basic three-dimensional concept was established. The next step was to create several possible designs for the flat surfaces. The idea was to represent visually the Fourth of July firecracker and beauty pageant that is basic to the play's content. I used DeluxePaint's brush tools and palette control functions to experiment with combinations of "stars and stripes" and "rocket burst" designs. It became obvious that many more possibilities and variations of a design or detail could be explored in a shorter time than with traditional sketchbook and paint approaches.

Meanwhile, the students were busy. Their projection slides had to fulfill several purposes. In introducing the scenes, the slides must tell the audience where the action is, the time of day and the ambience. The play's setting is a small southern town with interior, exterior, day and night scenes.

After deciding what kinds of images the scenes required, they searched for photographs to use as source material. These were traced into the computer using the Kurta Mouse



Some sample set designs from The Miss Firecracker Contest.

Pen and DeluxePaint. A xerox machine proved useful in allowing copying, cutting and recombining of source material prior to tracing into the computer. After the basic image was entered, the students were able to design, color and refine the image so that they were related in style and color. The finished images were photographed from the monitor using a 35mm slide film at one-thirtieth-of-a-second (or slower) shutter speed with the camera mounted on a tripod. This simple method produced inexpensive slides of a quality that projected a larger image without significant distortion, so we did not have a projected rectangular edge to deal with.

. . . The Bombs Bursting in Air

The large and noisy firecracker show at the end of the play was a little more complicated. To create this effect, I decided to use a combination of slides, multiple projectors, sound effects and lighting effects. By using a computerized controller to activate the projectors, it is possible to project slides at a rate of eight per second. This produces an acceptable animation effect. The art students designed the firecracker slides—where the rockets rise, burst and dissolve—on the Amiga using DeluxePaint. The image was saved to disk at very frequent intervals as it was created. The total number of intervals per rocket would be 25 to 35. The completed rocket sequences were photographed from the monitor as described previously. Registration of the slides was maintained by not moving the camera position until each set was complete. To produce one minute of "rockets bursting on high," we generated about four to five hundred slides and used a rack of eight carousel projectors synchronized with taped sound effects and cued lighting effects.

Well, how did it all work? The whole concept was very effective. As a set design tool, the Amiga is limited only by the programs available.

The optimum program would need the image-creation ability of DeluxePaint and the CAD qualities of Aegis Draw, and not expend a prohibitive quantity of memory. It would also be useful to be able to rotate a three-dimensional set concept by using VideoScape 3-D or some similar program.

The slide projection was the most successful part of our design project. There are ways to produce better quality slides than photographing from the monitor; yet, considering the large quantity of slides we needed and the time involved in shooting them, this was a practical and economical procedure.

After *The Miss Firecracker Contest* production, I used the Amiga to create a set model for *Man of LaMancha*. To facilitate color and lighting experiments, I used Digi-View to capture the image of the model from different angles and enhanced the image with DeluxePaint.

"There are more things in heaven and earth, Horatio . . ."

A more challenging prospect, however, for the Amiga may lie in a future production of *Hamlet*. The appearance of the ghost of Hamlet's father has been the source of many experimental production techniques—and the Amiga may offer one of the more innovative "special effects" approaches. I have developed an experimental set of slides for programmed projection that could use a spoken soundtrack. ►

"*Enter,* Ghost, *armed* . . ."

SHAKESPEARE DOES NOT offer us much technical assistance when he introduces us to the Ghost in *Hamlet*. The only stage directions given are contained in the title of this sidebar. Perhaps he really had no idea that an Amiga might one day be used to create a ghostly presence before our very eyes. (It was, after all, only 1603, more than three and a half centuries before the age of the microcomputer.)

In any event, to develop my techniques for dramatizing the ghost of Hamlet's father, I chose to use a photographic image and a video image of a face as a basis from which I could develop a ghost image. This choice would provide direct comparison of two computer approaches that I wanted to try. The actual development of the sequence of images is based on the concept of building a ghost image up to solid form from what appears to be thin air and then dissolving it back into thin air. This would take several sequential slides for each pose of the ghost image. Building up and dissolving the image could use the same slide sequence in forward and reverse projection. The general approach to developing the image is similar for both the photographic and the video sources, involving a series of steps as follows:

1. Enter the source image into the computer.

- Photograph: Trace image on Kurta Mouse Pen using DPaint.
- Video: Enter image from camera or video recorder using video digitizer.
- Save entered image on disk as source image.

2. Clear up source image with DPaint.

- Traced Image: Refine drawing.
- Digitized Image: Eliminate background areas and isolate face image as desired.

3. Develop sequential images with DPaint.

- Dissolve Image: Break down, eliminate, alter and distort the image.
- Save image to disk periodically when a change in its appearance is significant.

4. Color the images with DPaint.

- Black-and-White Source Image: Assign colors and values using the palette controls.
- Color Source Image: Change and modify colors using the palette controls.

5. Photograph the images.

- Use a direct screen-to-film system for high-resolution slides.
- Use a 35mm camera with tripod for offscreen slides at 1/30 sec. or slower shutter speed.
  - a) Accurate sequential registration of slide images requires that the camera not be moved from its position when photographing the sequence of slides.
  - b) Use the bracketing technique of three exposures for each image.□

I chose to use a photographic image and a video-digitized image of a face for comparison of two approaches. In one approach I used an 8″ × 10″ black-and-white photograph and traced it on the Kurta Mouse Pen using DeluxePaint. I next "contoured" the line drawing as if it were a geographic map and gave each contour a gray value from light to dark to enhance the illusion of three-dimensionality. Finally, I blended the edges to produce my ghost face.

Now I needed to play with the appearing and disappearing qualities of my ghost. I also wanted to experiment with a digitized face image. After digitizing the "model" face, I eliminated the background to isolate the ghost image. I then dissolved and manipulated it using DeluxePaint, saving the image periodically for photographing.

". . . than are dreamt of in your philosophy."

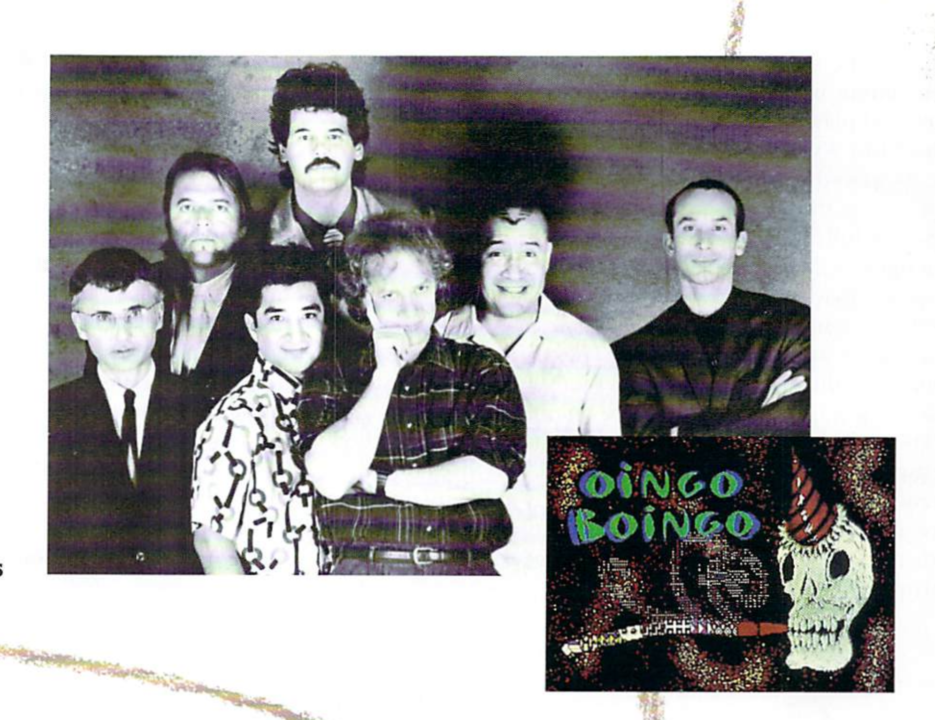
To make the ghost appear or disappear, the slides are projected in forward or reverse sequence using a dissolve technique. The computer image has a "light" quality that is ideal for ghost or surreal images. (For a more detailed description of these procedures, see the sidebar above.)

Although we have not yet used these images in a production, I feel that this technique could be quite effective. With some color enhancement and slight distortion of the image using DeluxePaint, and the use of a good character actor as the model for the digitized base image, an Amiga ghost may soon appear on our stage to chill us perhaps even more than Shakespeare's original did when he exclaimed to the Globe Theater audience:

I could a tale unfold whose lightest word
Would harrow up thy soul; freeze thy young blood;
Make thy two eyes, like stars, start from their spheres;
Thy knotted and combined locks to part,
And each particular hair to stand on end,
Like quills upon the fretful porcupine . . .

Amiga Boogie





By Ben and Jean Means

The hall is deceptively silent before Oingo Boingo takes the stage. But even before the lights go up, an Amiga-designed logo fills the backlit video screen with a sparkle of cycling colors. Computer-controlled lights reveal the band, and the frenzy begins in a burst of sound and color.

Lead singer Danny Elfman leaps madly upon the stage with his red hair ablaze as if he has just sprung unexpectedly upon the world. He sings of fear and dreams while the sampled throb of African drums, gamelan, Tibetan chimes and Chinese gongs create a mass of sound punctuated by an attack of live horns.

Behind the band, an Amiga computer mirrors his lyrics in brightly looming phantasms of archetypal skulls and a dead man's head from primitive Mexican art. The luminous head becomes 15 feet tall, with eyes that pop out and turn into spinning, enlarging kaleidoscopes of color that leave a trail of colored circles worming about the screen. After two hours of pandemonium and dancing, the show ends with an Amiga animation of an extraterrestrial driving a red convertible down a desert road at sunset. Then the BOI-NGO logo floats across the sky as the stage fades to black.

Their music is thundering, hard-driving rock and roll with two guitars, bass, drums, keyboards, two saxophones and trumpet. After 12 years on the tour circuit with hits like "Weird Science," this LA-based band has recently released its fifth album, "BOI-NGO."

Oingo Boingo, however, has leaped over the cutting edge of technology as a pioneer rock group in its onstage use of personal computer graphics. Lighting and Marketing Director Charlie Unkeless, working with artist Georgeann Deen and video savant Jeff Bruette, found the Amiga ideal for creating original color graphics and animations. Deen uses DeluxePaint II, Aegis Images and Digi-View to create the art, and then Bruette manipulates it with Aegis Animator. These computer images can be translated cheaply into tour merchandising, and special themes can be created easily for individual shows. For Halloween, they created a 15-foot bat with a 20-foot multicolored wingspread on a swirling background, as smaller bats flew eerily about the stage.

For their 1987 New Year's Eve show, Oingo Boingo staged an Amiga extravaganza, with a Bruette animation of a skull wearing a party hat and blowing a party favor that extended and retracted. At 30 seconds to midnight, metamorphosing numbers began a countdown that danced across the screen, giving way to "HAPPY 1987" in wildly cycling colors. A giant animated red devil hailed the New Year and jabbed merrily with his pitchfork while the ceiling rained balloons and a 12-foot fireworks skull (designed using Aegis Draw) burned. "It was one of the best moments I've ever had in a show," according to Unkeless. "These animations really make an impact when they're 15-by-20-feet tall."

Getting Closer to the Action

The band also uses the projection screen to show close-ups because people sitting in the back of the larger shows have ►

a hard time seeing. Says Unkeless, "Video closeups add a tremendous impact to a show. I first realized that when the band was playing at the US Festival in 1982. When the giant Mitsubishi TV display started two or three songs into the set, the crowd started roaring. They got completely involved, and we had this tumultuous ovation at the end of the show."

So, the full band lighting setup includes four video cameras that operate through a closed-circuit TV for close-ups, Amiga graphics that are stored on VHS or slide format and a Fairlight Computer Video Instrument (CVI) for image enhancement and special effects. The CVI also mixes and sequences the light images together through its switcher control, just like an audio mixing board mixes sound.

The CVI, however, has a severe limitation for live show performance: You can't create effects and live video sequences without bringing up an unsightly menu on the stage screen. The stage show has had to be programmed rigidly into the CVI in advance, and no changes could be made during the live show. Fortunately, the group has solved this problem with a video interface to connect the CVI to the Amiga. With this system, the Amiga drives the CVI software of over 100 effects, and the Amiga monitor contains the menu display, which is safely hidden from the audience. The CVI can then project the finished display with spontaneous wipes, dissolves and live trails of color.

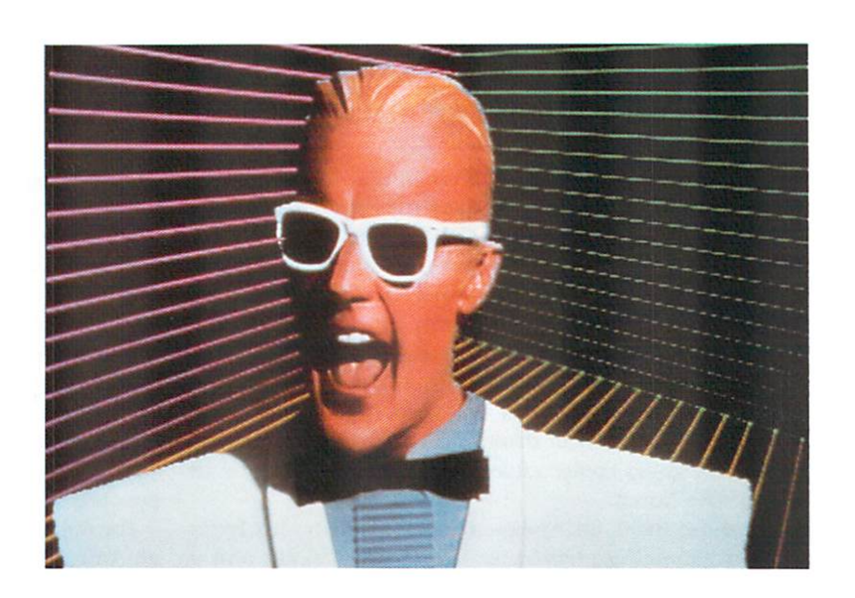
This spectacular live show made possible by the Amiga has been important in the success of Oingo Boingo. According to Unkeless, "It's the combination of audio and video that so captivates people. When MTV first started, people really responded to it because it captures the attention of both your eyes and your ears. We've been watching movie musicals for over 50 years, but this is a new way to present a commercial form of the song. I'm excited about the Amiga because it gives me a whole new area to promote the band through images and graphics."

Write to Ben and Jean Means c/o AmigaWorld *editorial, 80 Elm St., Peterborough, NH 03458.*

Graphics to the Max



The AW Emmy



By Peggy Herrington

Like all famous personalities, M-M-M-Max Headroom is a product of the times that created him. His ABC television hit series is produced by Lorimar Telepictures on what used to be the famous MGM Studios in the heart of metropolitan Los Angeles. The show is filmed on one of 24 motion picture sound stages crowded among other buildings on 44 acres of what must be some of the highest priced real estate in the world. Like the larger-than-life movie stars fashioned by MGM on this same site some four decades ago, Max is a reflection of the society in which he—or, in this case, his creators—live. He is, of course, the computer-created alter ego of investigative reporter Edison Carter, star of the series. By virtue of his meteoric popularity (not to mention his worldwide commercial endorsement of Classic Coke), Max has become one of today's best known TV personalities.

Although you won't catch Max making sly Amiga jokes or Edison Carter playing The FaeryTale Adventure on camera this season, if you read the credits that scroll down the screen each week, you will see that production computers were supplied by Commodore's Amiga Division. And true to their grandiose movie heritage, Lorimar Telepictures doesn't mess

around: Just about everybody who is anybody (and a couple of people who looked liked they weren't) seems to have an Amiga tucked quietly into his or her studio or office, up to and including Peter Wagg, executive producer of the series and co-creator of Max and the story behind the series.

Taking place 20 minutes into the future, the show features Edison Carter, a journalist near and dear to the hearts of hard-hitting, irreverant media, who is sort of an investigative Robin Hood. He discovers himself in the employ of The Establishment, in this case the nefarious Network 23, which unbeknownst to him has been controlling the masses with blipverts, subliminal messages broadcast over TV sets without off switches. Fleeing from thugs in his first attempt to expose blipverts, Carter smashes his bike into a yellow-and-black-striped parking-lot barricade bearing a warning about "maximum headroom clearance" (which, after Network 23 botches an attempt to digitally record an unconscious Carter's mind, supplies the name of Carter's new persona).

Max's Army

"Commodore computers are involved in the production of 'Max Headroom' from script to screen," remarked Jeff Bruette, a former Commodore employee who formed his own graphics production house in 1986 and is now technical consultant for the show (and who figures prominently in the previous segment of this article on Oingo Boingo). Bruette filled me in on the details as we stifled coughs in the artifically smoke-filled atmosphere of destruction on the sound stage of "Max Headroom," while poking into a van housing audio-visual equipment (including some Amiga 1000s) and freezing in our tracks as scenes for "Deities," one of the show's first network episodes, were being shot.

If the presence of 15 Amiga systems hadn't convinced me that the computer is integrally involved in the series, Bruette's explanation of how they are used would have, but contrary to rumor he denied that jerky, stuttering Max himself is Intuition-based. Neither he nor anyone there would reveal the details of how or with what kind of equipment Max is digitized (possibly because it's all just too easy), but they may be employing more Commodore computers than any other project this side of West Chester, PA. I counted six A1000 systems and nine A2000s, plus half a dozen or so Commodore PC-10 II clones in use by staff writers in the production offices.

Primarily responsible for this influx of Amigas are Bruette and Richard Lewis, production designer for "Max Headroom," both of whom were responsible for design and production of an "Amazing Stories" television episode that utilized Amiga graphics last season. In the case of Max, Amiga technology is used principally for the production of deceptively simple animated broadcast-quality graphic overlays that differentiate views from Carter's VidiCam (his portable news camera) from those of Big Brother, Network 23's Securicam scanners placed strategically throughout the war-torn land where the action takes place. Amiga-produced animations in the lower left corner of the screen (consisting of letters and numbers) also let you know when the characters are talking on ViewPhones.

Amigas to the Rescue

While Max made a belated appearance during the latter half of the 1986–87 season on ABC network television, six pilot films were produced earlier last season by Lorimar and shown on cable TV systems throughout the country. Made prior to Amiga involvement, according to Lewis, these episodes required almost constant use of a $250,000 computer system to create the graphic overlays, resulting in a nearly perpetual production bottleneck.

Thanks to the Amiga, this is a problem of the past. Amiga overlays are produced substantially on Bruette's A1000, which is equipped with a Xebec hard-disk drive and 2-megabyte expansion RAM board by Microbotics. A CSA 68020 board with 68881 math coprocessor still in the carton had arrived at Lorimar the day before my visit and had not yet been installed. Bruette uses custom high-resolution (640 × 400, HAM mode) animation software by Aegis Development in addition to VideoScape 3-D and Electronic Arts' DeluxePaint II to design the overlays. A Cal Comp color printer is used for hardcopy screen dumps when necessary, and plans to utilitze it for creating props like labels for soft drink cans are in the works.

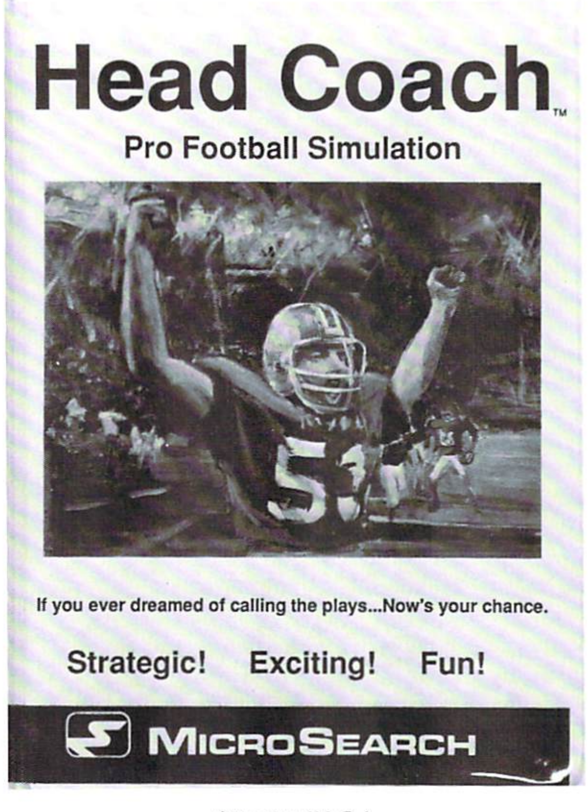
Just down the hall, art director Frank Pezza (formerly of "Miami Vice") tests color combinations and designs logos with DeluxePaint II on his Amiga 1000. He also uses Micro-Systems Software's Scribble! for cost breakdowns and budget reporting. Lewis also has an Amiga in his nearby office, and several others are across the lot in Lorimar's post-production facilities.

Although Amigas are currently employed strictly for "Max Headroom" at Lorimar, Max is only one of its properties; this season alone, the studio is involved in eleven first-run network television shows, ranging from "Dallas" and "Thunder Cats" to the seemingly unstoppable "Truth or Consequences."

"The Amiga is the workhorse of our production on Max," series producer Brian Frankish told me. "We use it in all aspects of our visual technology, and we use lots of technology around here," he said with a smile. "We burn it up and we tell people like Commodore to bring us whatever they can come up with."

And whatever Commodore comes up with next probably *will* find its way there in multiple sets just like the Amiga. After all, what could be more appropriate than more digital gear for a man of our times like M-M-M-Max?■

Peggy Herrington is a contributing editor to AmigaWorld. *Write to her c/o the magazine's editorial department at 80 Elm St., Peterborough, NH 03458.*



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Reviews

City Desk

The moral: Don't judge a publisher by his cover.

By Gary Ludwick

CITY DESK FROM MicroSearch is a desktop-publishing program with an identity crisis. Its poorly-designed packaging is crude, unsophisticated and kind of cheesey, but the software inside is, in many ways, the most powerful and flexible publishing program to yet hit the Amiga market.

In previous desktop-publishing systems, you assembled your page using a series of boxes and columns, then inserted the graphics and type into the appropriate spaces. With City Desk, you initially define your page only in terms of columns. Using a pull-down menu, you specify the dimensions, the number and the space between each column for the basic page layout. Filling the template is simple. Load a graphic (from any IFF compatible file); place and size it; load your text material (Notepad, ASCII or Scribble!); click it onto your page, and it automatically flows around any graphic, headline or caption you have in place. The process will work just as easily if you put text down first and then insert your graphic and headline elements. Just hit the Reflow Text icon, and the text will wrap around the other elements.

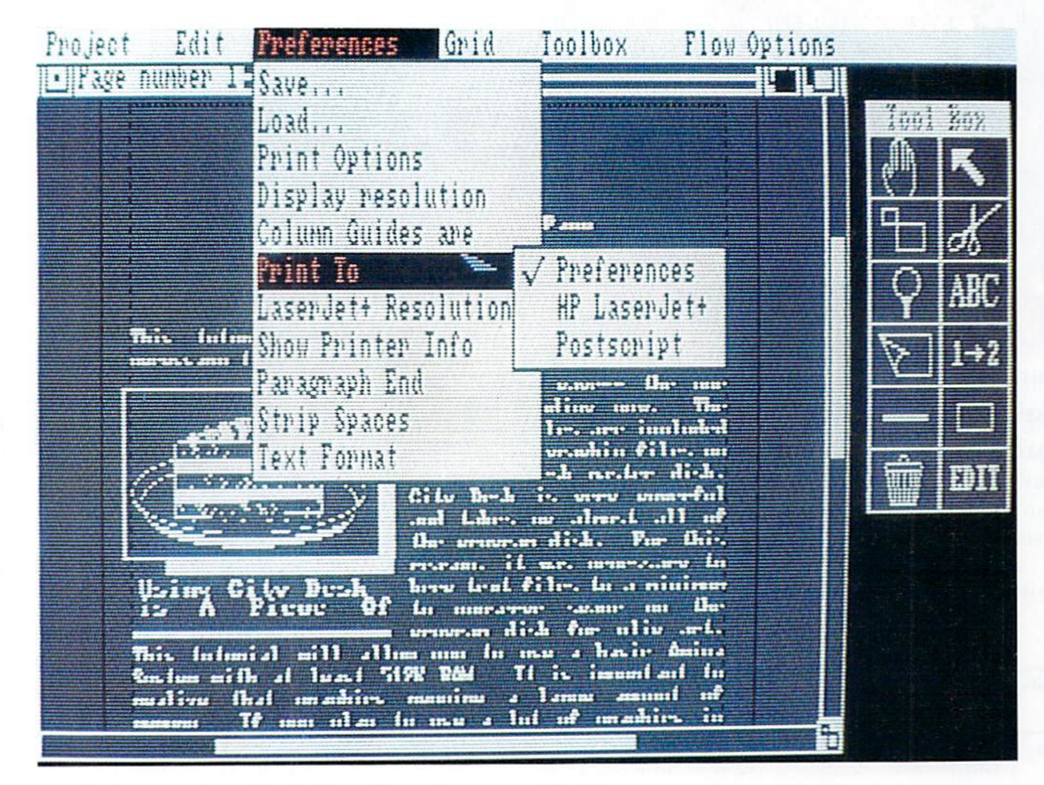
City Desk supplies most of the tools for layout and editing that you will find in any current desktop-publishing program. Except for the headline/caption device, the program has no text editor, but it does offer a rudimentary graphics editor. If you're not a proficient artist, the selection of line clip art will be helpful. All the standard commands are present—cut and paste, page magnification, text reflowing and the ability to change fonts and their sizes. Like its competitors, City Desk has a WYSIWYG screen display.

City Desk's combination interface of an icon toolbox and pull-down menus works very well. Frequently used layout and editing tools are close at hand, while defaults and preferences are controlled from the menus. Almost every aspect of the program is mouse controlled.

City Desk is unprotected, and comes complete with both Postscript and HP Laser Jet Plus drivers, as well as supporting most Preferences printers. Currently it does not support 24-pin printers, but MicroSearch promises an upgrade in the future.

What puts City Desk a page ahead of the pack is the controls it provides for the expert user. Your ability to control City Desk's defaults and preferences is unmatched by most other publishing programs. Almost every option available from the pull-down menus can be toggled or selected and saved to a Preferences file as start-up defaults. These user-definable options include display resolution (600 × 200 or 600 × 400), visible or invisible column guides, text attributes, printer selection and resolution, as well as all toolbox options. No more starting from scratch every time you boot up.

The second unique feature of City Desk is its ability to use embedded commands. For example, you have three ways to specify font style and size. You can define it in the defaults section so that your favorite font is ready on boot up. Or, you can use a requester which will change a chain of text from within the program. Lastly, you can, while writing your text, embed commands that ►



A sample page from City Desk at three-times magnification.



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will change size and style, even from letter to letter if you want. In the same manner, you can change the character of your font from bold to italic. City Desk also allows you to change the size of your type beyond what's available in the font library using a Magnify command. You can stretch Amiga fonts vertically and horizontally so that the results are either intentionally distorted or proportional to the original.

Other controls available from embedded commands include all justification features, indention specifications, margins, paragraph, line and sentence spacing, line leading, control of line and word breaks, tabs, superscripts and subscripts.

But City Desk's features don't stop there. The program will automatically rule columns, convert color IFF graphics to line drawings, add left or right graphic drop shadow and align text and graphics with a user-defined grid. You can resize text and graphics from the toolbox, define rules, boxes, headers, footers, banners and special offsets. A number of special commands make using a laser printer much easier.

When I reviewed Pagesetter and Publisher 1000 I had the feeling that serious publishers would grow out of them. By contrast, you can grow into City Desk. Simple enough to satisfy the needs of the casual or beginning user, City Desk all the power, controls, flexibility and laser capability that a serious user will want, sooner or later. With a few more touches, such as automatic hyphenation and kerning, City Desk could be the only desktop-publishing program you'll need. Too bad the packaging doesn't do justice to the software inside!

City Desk
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713/988-2818
$149.95
512K required.

AiRT Programming Language

Is a picture worth a thousand key strokes?

By Sheldon Leemon

WHILE COMPUTERS are getting easier to use, thanks to mouse-driven windowing systems, programming languages have not kept pace. Almost all of them require you to create text files full of very precise instructions, carefully phrased so that the computer can understand them. For those not initiated into the mystic rites of programming, getting a computer to perform even the simplest task can be frustratingly difficult.

The AiRT programming language (pronounced "art") is an attempt to bring point-and-click simplicity to the programming process. The typical programming statement consists of a command word that tells the computer to do something and a command parameter that clarifies how the computer is to carry out the instruction. For example, if the command word tells the computer to print something on the screen, the command parameter could be used to specify the text to be printed. In most languages, each program statement consists of letters or numbers that you type on the screen, using a text editor. In AiRT, each program statement is represented by an icon. Instead of typing lines of text, the AiRT programmer uses the AiRT editor to move command icons into a grid of cells called a frame. A finished frame gives a pictorial representation of the program flow.

Since instructions often need to be clarified by command parameters, AiRT provides a grid for these as well. Most of the time, the parameter will be a variable, which in AiRT is called a field. Fields are stored in a grid called the field map. When you click on an unused square in the field map, you can define a new field there, giving it a name, a type (string, numeric, etc.) and an initial value. You may also assign an initial value to the field. To use one or more of these fields as command parameters, you double-click the icon for the command. A new screen is displayed, which shows the parameters that the command requires. You may then choose fields for the required parameters by clicking on the appropriate cells in the field map.

When you've finished editing a frame, you save it to a disk file, then use the AiRT compiler to turn it into a program. Technically speaking, the compiler turns the AiRT program into interpreted pseudo-code, which means that the program will not run as quickly as one compiled to machine language. The finished program is, however, a stand-alone application that can be run from Workbench by clicking its icon.

While AiRT is significantly easier for beginners to use than most programming languages, its simplicity necessitates trade-offs. For one thing, while point-and-click systems are easy to learn, and keep beginners from making mistakes, they can start to get in the way once you graduate from beginner status. Thus, the system of choosing command icons from a scrolling list of pictures makes programming in AiRT somewhat of a slow process.

AiRT's relatively small set of commands imposes even more significant limitations. These commands are mainly geared towards the creation of small database-type applications. The commands that are there are very helpful—such as the command for displaying an IFF picture file, which should come standard with every programming language on the Amiga, but doesn't. There are commands for creating and using your own Intuition gadgets. There is even an instruction for displaying a complete form created using a supplied form-generation utility. But there are not, for example, any commands for manipulating string data, other than for converting lower-case letters to upper-case. Such functions are necessary for creating sophisticated reports for database applications. Nor is there a way to generate pull-down menus. The conditional flow control is limited to simple "Jump If. . ." statements.

Since AiRT is a completely new and unique language, there is a considerable need for documentation and sample programs. The slight manual, which accompanies the program disk, is not enlightening. It consists of 39 pages written in a tutorial style, followed by a 25-page reference section. Nor is the manual written very clearly. Despite a fair amount of experience programming in BASIC, C and assembly language, I was unable to start programming in AiRT until reading the step-by-step instructions for "Making a Sample Program." The six-command sample program listed in this section is the only known example of an AiRT program, and is hardly adequate for demonstrating the range of the language. When I asked PDJ Software for additional examples, I was told that there were none available.

AiRT's ease of use makes it an appealing alternative for those who wish to custom-tailor a small database or forms entry program. But this ease of use must be weighed against the non-standard nature of AiRT, and its limited command set. The fact that its originators have not designed any applications using this language makes it very difficult to evaluate whether a whole new language was needed to make programming easier for the beginner. The buying public ►

might have been better served by an icon-driven front end for an existing language, like BASIC.

AiRT Programming Language
PDJ Software
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$64.95
512K required.

LPD Writer

A word processor in the hand is worth two in development.

By Douglas Watt

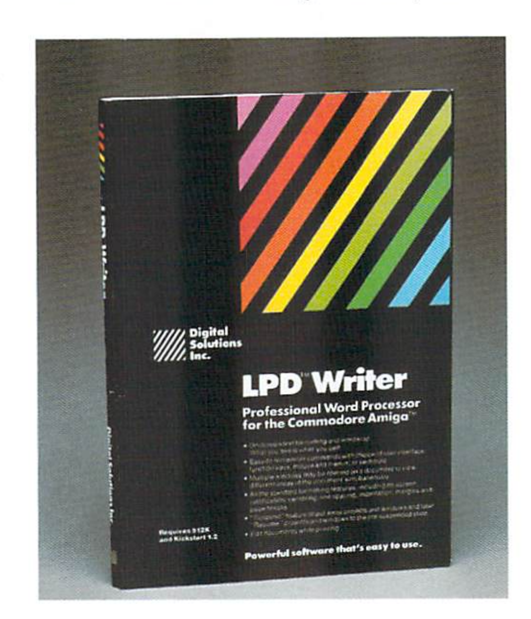
THE WAIT IS over. LPD Writer, Digital Solutions' long anticipated word processor, has arrived. If you're familiar with Digital Solutions' Pocket Series software, LPD Writer's interface should feel quite comfortable. Due to the program's triplicate structure, every command can be executed from either pull-down menus, function keys or control key sequences, offering a most unusual degree of flexibility. While it does not have the completely bit-mapped screen approach of more visually oriented programs like ProWrite (New Horizons Software), its formatting capabilities are more powerful, and its print routines less buggy. The WYSIWYG screen displays headers and footers, but not page numbers.

Despite the wealth of formatting, editing and cursor control functions, the command structure is reasonably intuitive and simple to learn, giving the program an attractive ratio of power to ease of use. In my opinion, LPD Writer is one of the best word processors for the Amiga—but it's not perfect.

LPD Writer does have some significant faults. Slow line scrolling, cursor scrolling within lines and character insertion within lines, make it possible for a reasonably fast typist to get ahead of the display. Also, given the slow cursor, it is easy to overrun text, a destructive oversight when using the backspace or delete key. Though one of the program's nicer features, the Suspend function also lacks idiot-proofing. Suspend allows you to resume exactly where you left off, by saving then recalling a resume file that stores information about current file operations. However, if you accidently call a text file a resume file, it can be overwritten and lost. Resume files should be regarded internally by the program as distinct commoditities from text files, so using Suspend doesn't cost you hours of work. Requester boxes should also include more DOS information, such as file size and space left on the disk.

Dangerous Protection

Far and away, the most serious of the program's liabilities is the copy protection. As a rule I don't like DOS-based copy-protection schemes on any program. Not only does it undermine hard-disk installation, a copy-protected disk may be much more vulnerable to errors if it is written to. The manual recommends that the disk be left in a write-protected mode, but this is really confining, as the master disk needs to be able to function as a system disk. This may be dangerous to the well-being of the disk. Just in rewriting the startup-sequence file several times, and in placing FACC (a floppy-disk accelerator from ASDG) on the disk, my LPD Writer developed a major error, and became unusable. Although this may have



The latest word processing entry.

been due to a buggy text editor or problems with one of the public domain programs I accessed, I suspect that any disk with altered sectors is going to be permanently vulnerable to self-trashing if written to enough times. You should be able to individualize system disks to your needs, but the LPD Writer's copy protection frustrates ongoing tinkering and fine-tuning. Without the copy protection problem, this program would really shine.

In general, the command structure is logical and reasonably comprehensive. There are nine menus—Project (file-handling options), Move (for cursor manipulation), Edit (page-formatting operations), Range (cut, copy, paste, etc.), Format (for lines), Search, Style, Window (allowing for some choices about windows on the screen) and Other (mail merge and lists). A transpose function for characters and words and an offset function so that you could have different screen margins from printer margins would be helpful. Another improvement would be requiring one key press instead of two to move the range definition from within control key sequences to the next word. There should also be an easier way to move the cursor to the top and bottom of a screen. In addition, I don't like commands executed with escape key sequences (sequential key presses) mixed on the same menu with those that require control key combinations (simultaneous key presses). The range definition system departs from the practically industry-standard method of clicking and dragging. Instead, you double click, release the left button, go to the end of the range and just click once. The system is potentially slightly faster, though somewhat awkward at first.

However, the cursor control flexibility is admirable, allowing easy word-at-a-time and sentence-at-a-time cursor scrolling. Zoom and Unzoom allow you to expand and contract windows easily with two key presses. Text editing is surprisingly easy when the best of a mouse-driven and a command-driven interface are combined. Other nice touches include the optional interlaced screen, integrated spell checking (although with a grossly inadequate dictionary that needs several entries to really find many words), fast file loading, unlimited document length via linked files, use of expanded memory to hold huge files, side scrolling for wide documents and the ability to edit documents while printing.

LPD Writer is a sophisticated and flexible text processor that is easy to use, yet reasonably powerful. It will not intimidate the computerphobic, and it will satisfy all but the most demanding writer. The copy protection is a handicap, as are its few other quirks. I suspect from the company's habit of timely upgrades that revisions will smooth out most of the wrinkles. Perhaps they could offer an unprotected version to registered owners. The program is close enough to being a superb program that it is definitely worth looking at if you have seri- ►

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ous word processing needs. With just a few revisions, and no copy protection, LPD Writer could become one of the great ones.

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$119.95
512K required.

Express Paint

Put your ideas in black and white, and 30 other colors.

By Chris Dickman

CONSTANT CHANGE is the essence of the software industry. With new products and program updates being tossed into the marketplace at a dizzying pace, the very notion of an application being the *ne plus ultra* in any category runs counter to reality. So what to think of Express Paint, a paint program billed as "The Ultimate in Desktop Graphics"? As yet another bit-mapped paint program, with a shareware ancestry, does it fill a significant need?

I admire the obvious attention to detail that's gone into this program, as well its ingenuious tricks that squeeze maximum performance out of the system's hardware and software. The program hangs together nicely, never leaving the user up an alley with no exit.

Vdraw, the shareware paint program on which Express Paint is based, was the first paint program to allow editing scrollable pages larger than the screen size, and this feature is well supported in Express Paint. Loading the program brings up a Startup window that provides screen and page options for width and height and number of available colors. For black-and-white work on a 512K machine, a page resolution of 960 × 720 is recommended. For color work, the route to go is 320 × 200 for 16 colors or 640 × 400 for 32 colors. Screen resolution is usually set to the same values, but it doesn't have to be. If you have a monitor with overscan, two utilities turn this feature on and off, providing a screen resolution of 740 × 470.

Express Paint holds your image in memory during editing, so plan on adding extra memory to cope with large, 32-color drawings. Given enough memory and the right printer you can create pictures up to 1,024 pixels by 1,000 lines. Extra memory will also speed up the program, serve as a dumping ground for brushes and fonts and take advantage of Express Paint's multi-tasking abilities. Since it's a bulky devil, you have the option of either loading it completely into memory or running it in overlay mode. On a 512K machine the latter is necessary for handling drawings of any significance.

Iconitis

As a paint program, Express Paint is competing against such mature, feature-laden competitors as DeluxePaint and Aegis Images. No surprise then, that it uses the common menus and icons interface. Menus, actually, have largely been abandoned and remain only for file operations and parameter settings. The program is so heavily reliant on icons that Express Paint is suffering from a definite case of iconitis; there are over 100 of them (the Fill icon alone has 16), some of quite obscure design. Thank goodness for the command card.



The Express Paint screen and Fill icons.

Clicking on any of the icons (called tools) at the bottom of the screen brings up a handful of related ones on the right. Besides the expected tools for drawing lines and boxes, changing colors and manipulating brushes, there are enough fresh ones to capture the interest of even the most experienced Amiga paint enthusiast.

Take the related Cut and Special Effects tools, for example. Most paint programs let you draw a box around part of the screen and use it as a brush. The Cut tool goes beyond this by also using the defined area as a fill pattern or raw material for the Special Effects (Fx) tool, which rotates and mirrors the defined area as well as expanding and exploding it. Once defined, cuts are available to a number of other tools, such as Box, Fill and Brush. A small icon of each cut is also created and the currently available cuts can be scrolled, appearing in the top left corner of the screen one at a time. Previously saved cuts can be loaded from disk at any time. Where Express Paint's use of cuts really comes in handy is in the program's ability to be loaded along with a user-defined range of cuts. You either place the cut names in a profile file, which loads automatically along with the program, or click on the Workbench icon of each desired cut before invoking Express Paint. Neat!

Pretensions to Print

If Express Paint had been satisfied with being just another paint program it would pass muster as a capable version of the genre, with a few unique twists thrown in. Not content with this, however, it has pretensions to providing features normally associated with desktop-publishing programs. As someone who makes a living using PageMaker and Ventura Publisher, I can only say that PAR is overambitious in this regard.

Lets start with fonts. Express Paint uses the Amiga system fonts, as well as similar public domain and commercial efforts. These are without exception low-resolution, poorly designed bit-mapped kludges that just don't cut the typographic mustard. Fine for the club newsletter, perhaps, but that's about it.

Given that the fonts used with Express Paint are weak, its text-handling abilities aren't much better. You can either type text right on the screen or import ASCII files. You can then give the text bold, underlined, italic or extended width attributes. Loading a file from disk takes forever, even with the addition of an AddBuffers statement in the startup sequence. Once loaded, I found the justification and fill modes unacceptable, with bizarre word and letter spacing the norm, rather than the exception. Hyphenation is nonexistent as is tracking control. And as with all paint programs, once you move on to the next operation, you can't go back and change text, unless you box it and treat it as a cut.

As far as output goes, Express Paint assumes you'll be using an Epson dot-matrix printer, although brief mention is made of an Okimate 20 color printer. Printing is painfully slow; a logic-seeking algorithm ►

would save the printer from grinding away interminably. The word 'laser' doesn't appear in the index, which speaks eloquently of the program's limitations.

There are other problems. While the content of the 88-page manual is nicely typeset, well-organized and comprehensive, it's stuck in an oversized plastic box that's too large to prop up on the keyboard. PAR, please lose the box. On disk, the examples give no sense of the program's abilities.

Express Paint is yet another paint program, albeit with some innovative features. Since it stores its files in IFF format it would serve as a useful adjunct to Deluxe-Paint or Aegis Images. Its reasonable price also recommends it as a first paint program to those who don't need all the features of its heavyweight competition. But as a desktop publishing tool? Forget it. Until Express Paint, and similar Amiga programs, can provide laser and PostScript support, the phrase should not be bandied about so freely.

Express Paint
PAR Software
PO Box 1089
Vancouver, WA 98666
800/433-8433
$79.95
512K required.

CLImate

Take a pinch of the CLI, add a dash of Workbench and see what happens.

By Louis R. Wallace

WHILE WORKBENCH is sufficient for many purposes, by itself it cannot perform all the many disk-based operations the Amiga supports. For example, Workbench needs .info files to find disk files or subdirectories, and cannot easily make new directories. The CLI has the power to display all files and directories, create new directories and even perform batch operations on related files, but the CLI commands are not for everyone. CLImate from Progressive Peripherals & Software is meant for those who need the CLI power without the hassles of learning the commands.

CLImate allows you to search and examine any directory or subdirectory with the mouse and a graphical interface. The program works with the internal and three external floppy drives, two hard drives and the RAM disk. You can format only two of the floppy drives (df0: and df1:), but cannot format a hard drive from CLImate.

You can very quickly and easily duplicate a file, a group of files or a directory. You can also move files from one directory or drive to another, removing them entirely from the source. Just as in the CLI, you can use pattern matching, but unlike the CLI you can group unrelated files together by pointing and clicking.



CLImate, a dedicated file manager.

The contents of the source and destination files are contained in two seperate windows. Each window can display 10 files or directories at a time, with scroll bars to access more. There are no options for displaying disk and volume names, file dates or file comment lines.

On the screen you can view the contents of a file as either an ASCII or HEX listing, but you can only print the ASCII listing. The print file option has a fair number of format controls for the output. You can specify the number of lines per inch, the page length, left- and right-margin settings, print page numbers, line numbers (if desired) and set tabs and formfeeds. You can also set up a header that will print the filename, date and time on each page.

CLImate will display any IFF compatible picture, including HAM images. Though this is handy for a slide show, you cannot print pictures from the program.

Rapid Transit?

One of the supposed advantages of CLImate is having speedy access to the directory. The .fastdir file is a listing of all the files on the current disk or directory, and it does allow very rapid directories, but only

after it has first read the directory into memory and written it out as a disk file. So, whenever you look at a disk for the first time, it is really no faster at all. Another problem associated with this type of directory access concerns your use of the disk when you are not using CLImate. If you add or delete files at another non-CLImate session, AmigaDOS (or any other program) does not update the .fastdir file. So, when you next use CLImate to access that disk, it finds the .fastdir file, and does not know you have added or deleted any files, and the file list it shows you will not be accurate. If you push the Read button on the CLImate batch option display, it will reread the directory and update the .fastdir file. But doing so cancels out the .fastdir option's usefulness. I found it more of a hindrance than a convenience. It also clutters every directory on every disk it examines with that .fastdir file, taking up potentially useful storage space.

CLImate is itself nearly 100K long. Combined with its memory requirements, for a custom screen nearly 150K of memory is used. Unless you have a lot of memory available, it is not something that you will want to have memory resident all the time.

Can I recommend CLImate to you? The answer is a qualified yes. It does offer an easy to use, graphical interface that emulates many of the CLI functions, and it's not excessively expensive. But I would suggest that before you spend your money, check out your local Amiga users group's public domain library or some of the telecommunication services for a free program that does what you need.

CLImate
Progressive Peripherals & Software
464 Kalamath St.
Denver, CO 80204
303/825-4144
$39.95
512K required.

Digital Link

Now your Amiga can gossip with IBMs and Macintoshes.

By R. B. Trelease

A GOOD asynchronous terminal emulation and communications package should allow you to explore the Amiga's novel multitasking and graphics system, while retaining connections to your office machine or favorite computer network. Just such a package, Digital Link gives the Amiga access to PCs, networks and minicomputers.

Getting Acquainted

One of the earliest commercial communications systems offered, Digital Link provides special features for file transfer with PCs and Macintoshes. In fact, Digital Creations' premier connectivity product comes with Amiga-to-IBM and Macintosh null-modem cables, plus disks for all three machines. Within the limits of the computer's user interface, Digital Link is uniformly implemented, for easy learning and simultaneous use. This configuration is aimed to enhance direct file transfer between systems. The terminal emulations offered also assist knowledgeable users seeking direct connection to larger computer systems, such as DEC VAXes and PDP-11 minicomputers.

Conventional protocol, speed, terminal type emulation and transfer protocol settings are common to all three versions of Digital Link. Local echo controls are select- ►

able, along with odd, even or no parity settings and seven- or eight-bit word size. All three machines support data transmission rates of 300 to 9,600 baud, with rates of up to 57,600 baud for Amiga and Macintosh communications.

System option functions include session logging to disk file, default parameter saving and translate-in/out for bidirectional control of character-stripping for CL/LF. While the manual lists available terminal types as ANSI standard, DEC VT100, VT52, Lear Siegler (LSI) ADM 3A, TTY and the Televideo 925, the Terminal menu also revealed settings for the ADM 5 and the Televideo 910, 912 and 920. Available file-transfer protocols include ASCII Text, XMODEM, Super XMODEM and Simple modem. AmigaBinary and MacBinary transfer modes allow for controlled co-transfer of machine specific .info files.

On the Amiga, the terminal window occupies the whole display screen. The top title line doubles as a pull-down menu bar with five modes, Project, Terminal, Configuration, Speed and Command. The Project menu contains entries for saving the system configuration, sending and saving text files, controlling XMODEM and other transfers. The Configuration menu offers separate items for handshaking protocol (XON/XOFF), local echo toggle, parity type, word length, stop bits and translate in/out for character adding and stripping. The Speed menu includes individual settings for the range from 300 to 57,600 baud, with 38.4 kbaud for those +19.2 kbaud thrillseekers. The Command menu, along with a toggle for hiding the menu bar, includes simple items for setting up and tone or pulse dialing a Hayes-compatible or other automatic modems.

Hiding the Amiga Digital Link menu bar while on-line reveals a top row of indicators specific for each terminal, such as L1–L4 keyboard status lights for the VT100. Terminal-specific function keys map to the ten Amiga function keys. During binary transfers, the menu bar changes display status, including the number of blocks transmitted or received.

Shaking Hands

During start-up of Digital Link, single-disk system users will find a small wrinkle. When loading, Digital Link calls the Workbench disk for necessary functions. In the current version of the program, a prompt for the disk appears during program loading, although the prompt is *behind* the newly-painted, full-size terminal screen. Don't worry, the program hasn't crashed, only paused.

In the test set-up on a 512K single-drive Amiga with Workbench Notepad and Calculator open, Digital Link occupied 83,016 bytes of RAM with its disk window closed, 91,880 with the window open. While Digital Link is connected to a host system or network, you can take notes and calculate without disturbing the communications session.

During several months of operation, I used Digital Link for direct-connect transfer of numerous files between my Amiga, a PC clone and a DEC Rainbow. I preferred XMODEM at 19,200 baud for program source code, word processing and program binary image files. Digital Link was valuable for reliable and rapid source code transfer for PC-to-Amiga program cross-development. Amiga to and from PC transfers were smooth with no hangups. Even with default settings, it was easy to start XMODEM transfers on both machines without stopping for sending or receiving. The Amiga communicated with the DEC Rainbow via a public domain XMODEM/VT100-emulation communications program without difficulty. All standard XMODEM direct transfers were free of NAKs, with no added length on received files.

With a DEC LSI-11 laboratory minicomputer running the TSX multi-user operating system, a VT100 emulating Amiga at 9,600 baud could serve as the master (user 0) terminal or as another attached VT100. Comparable remote terminal function was also obtained at 300 baud via an auto-answer modem line on the lab computer. Although a few full VT100 features (beyond-ANSI-standard reverse video and line graphics) are not emulated, the Digital Link window provided acceptable minicomputer access for high-power multitasking workstation applications.

Using Digital Link, the Amiga successfully logged-on as a VT100 to Compuserve and private FIDO bulletin board microcomputer networks, with results comparable to those provided by full-VT100 emulation connections using the DEC Rainbow. Dynamic windowing and screen-position-writing worked appropriately.

Host computer and network connections point out the most significant gap in Digital Link, the lack of a KERMIT protocol transfer capability. Although XMODEM capabilities prove good binary file transfer coverage for BBS networks and commercial network services, professional and academic mini/mainframe systems and networks prefer and promote use of KERMIT. Of course, ►

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a public-domain Amiga KERMIT program is always available as a stand-alone system.

Inveterate networkers may also find it a bit tedious to work without log-on macros. In this regard, while serving the big-machine users with multiple-terminal emulation, Digital Link skimps on modem controls which might be considered critical by multi-network users. Despite a few shortcomings Digital Link is a useful terminal emulator for file transfer, network and large-system communications.

Digital Link
Digital Creations
1333 Howe Ave., Suite 208
Sacramento, CA 97825
916/344-4825
$69.95
No special requirements.



Game Shorties

Starglider

IN STARGLIDER, from Rainbird Software, one pilot stands between the attacking hordes and the free world—you.

A cross between a flight simulator and a hardcore shoot-'em-up arcade game, Starglider was first a hit on the Atari ST. On the Amiga, the graphics are outstanding, and the speed of the animation gives a real feeling of flight. The game itself is fast paced, and your ship, the AGAV (Airborne Ground Attack Vehicle), is responsive and easy to fly. The AGAV is capable of extremely rapid acceleration and deceleration, so you can stop on. . .well, if not a dime, surely a quarter. Your ship is equipped with both quadpulse lasers and short range proton missiles. You can only carry one missile at a time however, so use it judiciously. Your ship's shields constantly drain your energy reserves as there is always somone shooting at you.

The enemy is composed of many different types of craft and installations. There are land-based missile launchers, laser stations, mobile tanks and other, more deadly craft. Some of the larger enemies are very similar to the Imperial Walkers used by an evil empire in a galaxy far, far away. There are also towers that are used for energy transmission. By flying at ground level between them, you can gain energy for the AGAV. The skies are filled with flying craft and floating mines, as well as missiles and laser beams (aimed at you). All in all, there are enough blood-thirsty aliens to satisfy even the most trigger-happy starfighter. In some ways, the game's graphics are similar to the enemy craft in ArcticFox, which in turn shares a lot with the C64 game Stellar Seven. But Starglider has enough originality to make it a game in itself. My only complaint is in the sound effects. The game starts with a high-quality digitized rock theme song, but I was disappointed to find the sound effects during the game were rather lame.

Nevertheless, I enjoy playing Starglider, and recommend it to all you hardcore ar- ►

cade enthusists who, like me, demand action in your computer games. Starglider delivers. *($44.95, distributed by Firebird Licensees Inc., PO Box 49, Ramsey, NJ 07446, 201/444-5700. 512K required.)*

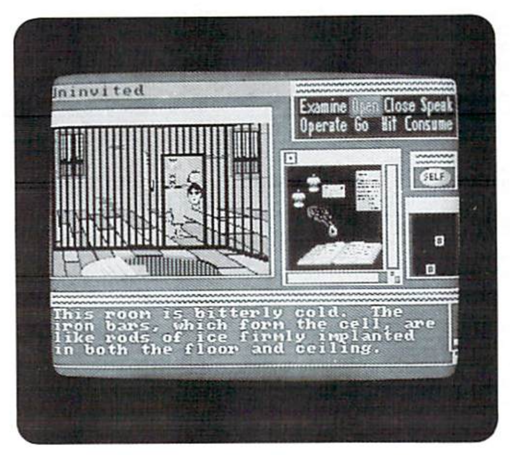
—Louis Wallace

Uninvited

ONE OF THE best interactive graphic adventures available, Uninvited from Mindscape is almost entirely mouse controlled. Many adventure games that try to eliminate keyboard input also eliminate the main reason for playing them, thoughtful entertainment. Uninvited manages to maintain your interest while making the game intuitive and easy to control.

The story starts like many grade B chillers. You and your brother are in a car. You have an accident, get knocked out for a minute and when you wake up your brother is gone and the car is on fire. After barely escaping, you find your way to the only nearby house, a dark, forboding, uninviting old mansion. You enter, hoping you can get some help finding your brother. Instead of help, you quickly find the house is full of evil spirits, demons, ghosts and even an evil wizard who wants to do you (and presumably your lost brother) in.

The graphics in Uninvited are extremely well done, duplicating the interior of an old, haunted, gothic mansion. They are combined with a generous sprinkling of excellent sound effects that occur at just the right moment—creaking doors, thunder, howling dogs and even screams.



Expect the worst if you're Uninvited.

Uninvited (like Deja Vu before it) is based on the principal that everything you see can be acted upon. You can use, move, open or destroy the furniture, wall hangings, windows, rugs, even the walls. The screen display consists of the main window for viewing the house and its contents, an inventory window of your possessions, a command window and the text window, which fills in story details. To access the eight main commands (Examine, Open, Close, Speak, Operate, Go, Hit and Consume), you click on the instruction and the object or objects you are interested in. For example, to open a door, just click on the door and then do the same on the word Go in the command window. To make it even easier, you can just double click on the object and the game will attempt to decide what you mean, usually with complete success.

Even if you have already decided that the only "true" adventure games are the all-text games, you should take a good look at Uninvited. It has all the glitter of graphic adventures, with all the depth of the classic text adventures. Now if you will excuse me, I'll be off to see what's behind that last door on the left. . . .*($49.95, Mindscape, 3444 Dundee Rd., Northbrook, IL 60062, 312/480-7667. 512K required.)*

—Louis Wallace ■

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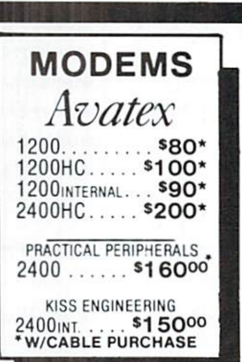
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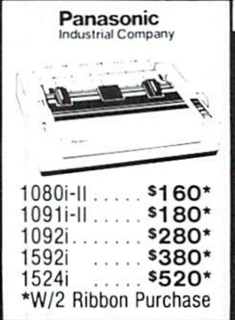


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Help Key

Faster than a speeding blitter, more powerful than a 68020,

able to leap megabytes in a single hard drive.

By Louis R. Wallace

Bi-Monthly Blues

Q: I got my September/October '87 issue and read Zeitgeist first (as always), and discovered you had gone monthly. After my initial reaction (GOOD! It's about time!), I realized I had paid for only six issues a year. Will I miss every other issue?

D. Pearson
Cevesco, NE

A: Don't worry, you won't miss any issues! You will get an issue each month until your six-issue subscription expires, at which time you will need to renew for the new 12-issue subscription period.

Cyrillic Cyphers

Q: I am looking for Amiga software that will permit me to create Cyrillic fonts so I can work on the Amiga in Russian and perform bilingual word processing by toggling between fonts (English and Cyrillic alphabets) within my documents. What do you suggest?

A. Mustard
American Embassy, Moscow

A: As mentioned in the March/April '87 Help Key, the 1.2 Enhancer Software Kit has a font editor in the tools drawer of the Extras disk. You can use this to create the fonts you need. As for software that will allow you to use them, there is Notepad (the version on 1.2 allows more than one font per page), ProWrite (New Horizons), VizaWrite Desktop (Progressive Peripherals & Software) and various desktop-publishing packages (see the Buyer's Guide, pg. 35). ProWrite and VizaWrite are word processors that allow multiple fonts and graphics in documents, and, in the case of ProWrite, multiple colors. If you need to create a custom Amiga Basic application, the program below will allow you to use your new fonts in your programs.

French Fonts

Q: In the March/April '87 Help Key you described the font editor in the 1.2 enhancement disks. After trying this for myself, I found it to be an extremely useful function. I was able to convert the keyboard into French for use with NotePad. Is there a way to access these user-defined fonts from Amiga Basic? If there is, could you please describe the process.

T. Roepsch
Dubuque, IA

A: You can use those fonts, and any other IFF defined font, in Amiga Basic. However, since there are no specific commands available, you must access the Amiga system libraries for the necessary routines. I've written a simple example program that will allow you to turn on any font in the FONTS directory of your system disk. It requires the presence of the appropriate .bmap files in order to work. You can create them with the program called CONVERTFD found on the 1.2 Amiga Extras disk. CONVERTFD will convert the FD files (found in the FD directory) of the 1.2 Extras disk into .bmap files. Once you have converted them, simply place them in the same directory with this program (or use CHDIR from within your program to switch to the directory in which they can be found):

```
DEFLNG a-Z
LIBRARY "graphics.library"
LIBRARY "diskfont.library"
DECLARE FUNCTION
  OpenDiskFont LIBRARY
INPUT "font:",fontname$
font$ = fontname$
IF (RIGHT$(fontname$,5)
  < >".font") THEN
  font$ = fontname$ + ".font"
INPUT "size:",size
font$ = font$ + CHR$(0)
attribute (0) = SADD(font$)
attribute(1) = size*65536&
fontname = OpenDiskFont
  (VARPTR (attribute(0)))
IF fontname = 0 THEN PRINT
  "error!":GOTO Abort
CALL SetFont(WINDOW(8),
  fontname)
PRINT:PRINT "This is "
  ;fontname$;" font."
PRINT "Now going back to
  Topaz 8. . ."
CALL CloseFont(WINDOW(8),
  fontname)
font$ = "topaz.font" + CHR$(0)
attribute(0) = SADD(font$)
attribute(1) = 8*65536&
fontname = OpenDiskFont
  (VARPTR(attribute(0)))
CALL SetFont(WINDOW(8),
  fontname)
PRINT"Ahh! Back to the default
  font!"
Abort:
LIBRARY CLOSE
```

For more information on using libraries from Amiga Basic, see "Using Libraries From Amiga Basic" in the September/October '86 issue.

Unequivocal Storage

Q: I very much enjoyed your article on Amiga hard drives in the July/August '87 issue. However, I still have a few nagging questions. I have a Zenith at work with a 40 MB hard disk with about 30 MBs used. I am concerned if a 20 MB drive will be large enough to hold the same amount of data. Since the Zenith is a 8/16-bit computer and the Amiga is 16/32 bit, does that mean the Zenith uses eight-bit bytes and the Amiga 16-bit bytes? Is the Amiga 20 MB drive roughly the same as a 40 MB Zenith PC drive? I understand some IBM-compatible drives automatically SHIP the drive heads on power down. Do the Amiga drives do this? Many commercial programs come with their own Workbench disk and won't run from the standard Workbench. Can these be used from a hard drive on the Amiga?

R. A. Pankonin
Vandenberg AFB, CA

A: The answer to your first question is easy. All measurements of disk capacity are made in eight-bit bytes and are the same on MS-DOS machines as they are on an Amiga. So, a 20 MB drive on the Amiga is half the amount on a Zenith 40 MB drive. As for 20 MBs being enough, if you need 30 MBs on the Zenith and plan to store the same information on your Amiga, you will need 30 MB. ►

Some (but not all) MS-DOS hard drives automatically SHIP the drive head on power down (moving it to a position where it won't bounce around and ruin the disk if it gets jostled). As for Amiga hard drives doing it automatically, mine (a 20 MB SupraDrive) does not. It does come with a utility that you can use from the Workbench that works just fine. Just as in the MS-DOS world, I suspect that some Amiga hard drives will do it automatically and some will require a utility.

To answer your last question, the reason some programs require their own Workbench is that these programs are copy protected. They will not likely be transferrable to your hard drive (unless they have a special install program). Even if they can be transferred, they may still need the original disk as a Key Disk every time you boot them. In general, however, if a program is not copy protected it can be transferred and used from a hard drive.

In and Out the Windows

Q: I am working with Amiga Basic to make a simple, specialized spreadsheet. I am using four different windows at once, and would like to be able to simply click on one window to work with data inside. I can figure out how to select with the mouse the data output window, but how can I select with the mouse the data input window?

E. Spross
Fairfax, CA

A: You are probably using WINDOW OUTPUT i to select your windows for output. This will direct the Amiga to print to window i, but it will not direct keyboard input from the window. The answer to your problem lies in an underdocumented variation of the WINDOW command, WINDOW i. This selects both the output and the input window.

To demonstrate, I wrote a small program (below) that opens four windows, and waits for you to choose one window by pointing to it and clicking your left mouse button. It will then (from within the chosen window) prompt you to type in something.

```
WINDOW 2,"Window 1",(0,0)-
  (300,80),0
WINDOW 3,"Window
  2",(315,0)-(615,80),0
WINDOW 4,"Window 3",(0,98)-
  (300,180),0
WINDOW 5,"Window
  4",(315,98)-(615,180),0
windowflag¼:flag=0
WINDOW windowflag
ON BREAK GOSUB GetOut
BREAK ON
ON MOUSE GOSUB Find-
  Window
MOUSE ON
DoNothing:' the program sleeps
  here waiting for
  GOTO DoNothing ' a left
  mouse button click
GetOut:
MOUSE OFF
BREAK OFF
FOR i=2 TO 5
  WINDOW CLOSE i
NEXT
PRINT "A clean exit with all
  windows closed."
END
FindWindow:
windowflag=WINDOW(0)
WINDOW windowflag
PRINT "You have selected Win-
  dow";windowflag-1;"."
PRINT "Ready for input. . ."
INPUT "Enter anything: ",
  anything$
PRINT "Thanks."
RETURN
```
■



What's New?

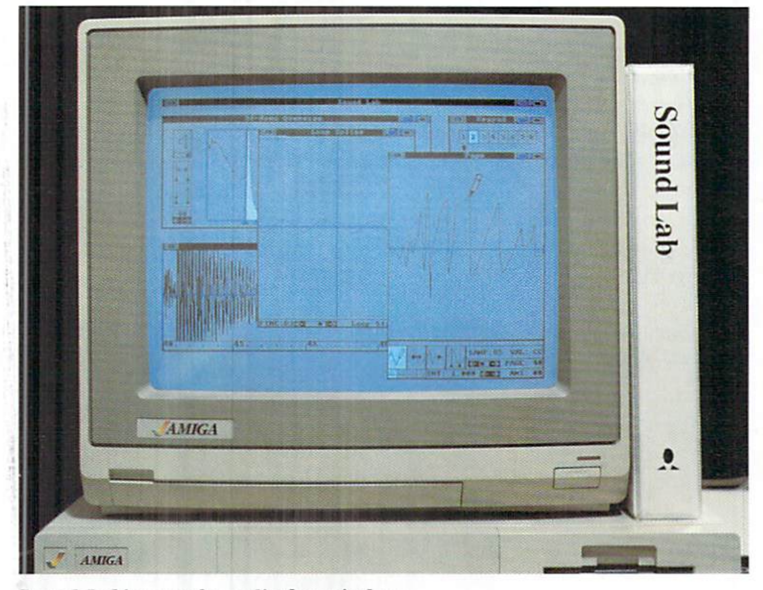
Always a computer of all trades, this month the Amiga becomes a lawyer, musician, cartoonist and stress analyst.

Compiled by Linda Barrett

Sound Experiments

Amigas in the lab? Of course, at least in the **Sound Lab** from Blank Software. A visual editing program, Sound Lab features waveform and voice parameter editing, audio processing, graphic looping aids and a wave-sample librarian. The waveform window displays everything from a complete memory overview to individual sample enlargements. The 3D window plots waveform frequency and phase evolution. Voicing controls include Envelope, Filter and Relative Filter controllers, a Wavesample Mixer, Memory Allocator, DCO Controls and Keyboard Assignment. Standard editing functions are included, plus processing functions such as Fade In/Out, Scale, Reverse, Invert, Rotate, Compress, Interpolate and Replicate. The Librarian transfers wavedata blocks, saves samples and programs and stores custom sample templates.

The program disk is non-copy-protected and completely mouse driven. Sound Lab sells for $299.95. For more information contact Blank Software, 1034 Natoma St., San Francisco, CA 94103, 415/863-9224.



Sound Lab's waveform display windows.

What You See Is What You . . . Backup

If you've just upgraded from a C64 or C128, Central Coast Software has **PRECISELY** the word processor which will be helpful. Besides offering the standard text manipulation features, this WSYIWYG word processor imports documents in PaperClip, SpeedScript and Pocket Writer formats. You can open up to eight windows at once, including a calculator and on-line help. Once you're comfortable with the basics, you can set up keyboard macros, multiple headers and footers, floating footnotes or generate a table of contents and index. In addition, PRECISELY supports mail merge, international keyboards and partial screen printing. Retailing for $79.95, the program is non copy protected for easy transference to a hard disk.

Once you have all your frequently-used programs on a hard disk, it's a good idea to back it up to floppy. **Quarterback** from Central Coast Software supports subdirectory, incremental and full backup and restore. The program automatically formats disks, catalogs files and numbers and checks disks in sequence. Non-copy-protected Quarterback also provides error correction. Backing up a 20MB hard disk to floppy takes approximately 45 minutes, according to CCS. The program retails for $69.95. Contact CCS at 268 Bowie Dr., Los Osos, CA 93402, 805/528-4906. ►

X Marks the CAD

The second British invasion may be in CAD software. At least that's what English-based Taurus-Impex hopes with the release of **X-CAD**, which offers something for everyone. For the architect, the program will automatically draw double lines to speed up cavity wall design. Doors and windows automatically align with walls and any excess lines are trimmed when new doors, windows or walls are inserted. Mechanical engineers can draw lines, arcs, circles and ellipses from end, mid-, origin or intersection points either tangentially, parallel or at a specified angle. Filleting, chamfering, automatic or user-defined dimensioning and tolerancing are also included. User-definable track widths, automatic component alignment, Net List capability and design checking of schematics and printed circuit boards will be helpful to electrical engineers. Cartographers can use 64-bit floating point prescision for mapping and B-splines for creating contours. You can even design your own text fonts and place text in proportional or uniform spacing at any angle or parallel to lines and arcs. To output your masterpiece, you can use any standard pen plotter, HP-compatible laser printer and the Kyocera. X-CAD sells for $499.95. Taurus-Impex products are distributed in the U.S. by Haitex Resources, 208 Carrollton Park Suite 1207, Carrollton, TX 75006, 214/241-8030.

Circle 186 on Reader Service card.

Circle 13 on Reader Service card.

512 for the 500 and Amiga Law

Progressive Peripherals & Software offers an alternative to Commodore's 512K of internal expansion RAM for the 500. The **EXP-512** is a RAM expansion board and clock/calendar which installs under the computer. The clock/calendar is battery backed and will keep track of leap years. The EXP-512 retails for $179.95.

Always on the lookout for unique and helpful products, Progressive Peripherals & Software has released **Microlawyer**. Intended to supplement rather than replace legal counsel, the package offers 100 common legal documents for personal, business and corporate use. You import a form template into your word processor, then fill in the blanks of the contract, will, lease, articles of incorporation or other document. Rather than an hourly charge, Microlawyer sells for a flat rate of $59.95. Refer your questions to Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204, 303/825-4144.

Subterranean Search

Imagine going to Scotland and spending most of your trip underground. That's what happens in **Arazok's Tomb**, Aegis Development's new illustrated text adventure that uses Amiga speech. In the game, you're a reporter sent to find the lovely but lost Daphne who is trapped in Caer Arazok's Tomb. While searching in and below the Scottish forests for clues, you must avoid or conquer enemies and other unfriendly types. Billed as an "adult" adventure game, Arazok's Tomb is priced at $49.95. Contact Aegis Development Inc., 2115 Pico Blvd., Santa Monica, CA 90405, 213/392-9972.



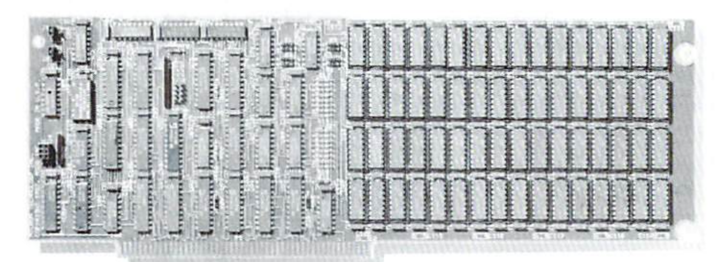
Solve the mystery of Arazok's Tomb.

Digital Pinups

If you need large color charts and murals from two IFF files, take a look at **The Big Picture**. You can even overlay HAM pictures with hi-res pictures in your printout. For last minute changes, you can run Deluxe-Paint or Digi-Paint while printing. The Big Picture prints multiple copies and lets you vary the aspect ratio. Lightning Publishing Consultants currently markets The Big Picture for the Xerox 4020 ($99.95), NEC Pinwriter CP7 ($99.95), Canon PJ1080A ($29.95) and Okimate 20 ($29.95). Contact them at 1821 N. Ohio St., Arlington, VA 22205, 703/534-8030.

Three In One

To allow for easy upgrading, Micron Technology's new **two megabyte memory board** is compatible with the Amiga 500 (MB-25-D5), 1000 (MB-25-D1) and 2000 (MB-25-D2). While the board plugs directly into an expansion slot on the 2000's motherboard, it requires an expansion chassis and interface card to hook up to the 500 and 1000. The board is fully populated and sells for $495. The adaptor kit is an additional $55. Direct your questions to Micron Technology Inc., Systems Group, 2805 East Columbia Rd., Boise, ID 83706, 800/642-7661.



Two more megs of memory from Micron.

Music Master

So you've got a Yamaha synthesizer and no way to hook it to your Amiga? Sound Quest offers several alternatives. All packages have online help and are reputed to be "musician friendly." The **DX Master Editor** ($145) stores and edits DX7, DX9 and TX data files, presenting graphic and numeric displays of voice and performance data. In addition, DX keyboard editing automatically updates the Master Editor. The **Master Librarian** ($125) stores, retrieves and edits Sys Ex data from MIDI equipment. Each file is loaded into its own data editor, plus there is space left for your notes and disk search keywords. The **DXII Master Editor/Librarian** ($175) offers all the features of the DX Master Editor, as well as storing and editing 13 types of DXII Sys Ex data. Fractional Key Scaling, Micro-Tuning, Performance and System Setup screens were also added. For D50 owners, Sound Quest is planning a **D50 Master Editor/ Librarian** ($160). For more information contact Sound Quest's U.S. distributor, Dr. Tease, at 220 Boylston St. Suite 306, Chestnut Hill, MA 02167, 617/244-6954.

Monochrome Blues

No longer are you constrained with only monochrome composite output on your Amiga 500 and 2000. The **ENC-1** from Communications Specialties converts analog or digital RGB output from any Amiga (1000s, too) to color composite NTSC video output. The ENC locks the color burst to sync to prevent non-synchronous chroma crawl on vertical color edges. Connecting to the video port, the 3 x 5.75 x 2-inch unit has its own AC transformer power supply and BNC output connector.



The output will drive a 75 ohm load—VCRs, monitors or production video equipment. Currently, Communications Specialties is including a free Amiga interface cable with the ENC-1 which sells for $395. Direct your inquiries to 6090 Jericho Turnpike, Commack, NY 11725, 516/499-0907. ►

Compute Your Karma

With **Amiga Biorhythm** you can master your mood swings instead of letting them control you. Astrosoft's latest program calculates and plots your physical, emotional and intellectual biorhythm cycles, plus a special cycle based on your personality type. Besides revealing your highs and lows, Amiga Biorhythm will interpet Critical Days. The program saves charts as IFF files for easy portability. Amiga Biorhythm sells for $19.95. Consult Astrosoft, PO Box 973, Santa Barbara, CA 93102.

If you need to monitor your moods more closely, perhaps **People Meter** is what you need. The Meter monitors your stress levels through two metallic velcro strips that wrap around your fingers. Leads connect the strips to the People Meter unit, which in turn connects to the joystick port. People Meter has programs for fun or serious stress managment. Besides the arcade game with sampled sound, there's MoodBench, which changes the background screen color according to increased anxiety levels. Due to multitasking, you can monitor your stress level as a bar graph or resizable VU-type meter while running other programs from Workbench. Another program uses an animated head to display varying levels of dismay based on the Meter's readings. The head can be replaced by other IFF or HAM graphics. If you're feeling adventurous, source code is provided. The People Meter retails for $59.95. Direct your questions to Aminetics, PO Box 982-205, Whittier, CA 90608, 213/698-6170.



Stressed-out? Try the People Meter.

Sunday Times, Watch Out!

What's a 16-letter phrase for "wordplay"? **Crossword Creator**. Polyglot Software's crossword puzzle creation program offers automatic pattern creation functions, automatic numbering and an over 40,000-word pattern-matching dictionary. You can run two dictionaries at once and customize them with additional words. Puzzles are saved in IFF format, so you can illustrate them with a drawing program. Written in Modula-2, Crossword Creator retails for $49.95 and is not copy-protected. Direct your questions to Polyglot Software, 10431 Ardyce Ct., Boise, Idaho 83704, 208/375-3741.

Changing the Sheets

In the world of business you can never have too many spreadsheets. **Haicalc**, the latest entry from Haitex Resources, boasts a maximum sheet size of 9,000 rows by 9,000 columns, cell formula functions and numeric accuracy of up to eight digits. For your convenience, the program takes advantage of the Intuition interface, multitasking and multiwindowing. For the computer's convenience, the program uses Sparse Matrix Data Storage and Dynamic Cell Allocation so that memory is allocated only to cells that contain data. Haicalc's read/write files are compatible with Notepad and Textcraft, if you need to move data between programs. If you need to move data within the program, use cut and paste. A picture is worth a thousand cells, so Haicalc supports pie, bar, line and point graphs. You can print everything out with the Print Macros which provide multiple page printing. The program sells for $59.95. For more information, contact Haitex Resources, 208 Carrollton Park Suite 1207, Carrollton, TX 75006, 214/241-8030.

Saturday Morning Animation

While MicroIllusions is releasing a slew of software from tank battles (**Fire Power**) to astronomy packages (**The Planetarium**) to space games (**Ebonstar** and **Galactic Invasion**) and singles games (**Romantic Encounters at the Dome**) to a word processor (**Dynamic Word**) to a music system (**Music X**), they're most excited about their **Photon Video** line of broadcast-quality animation programs. The four modules that comprise this desktop video system—Cell Animator, Transport Controller, Edit 3D and Render 3D—were designed to stand alone, supplement each other and work with third-party paint and video products. You can read and write files between the modules and third-party programs as all graphic file formats and SMPTE are supported.

Cell Animator provides industry standard cell animation. You create a background scene, place animated characters on the frames, then play the animation in real time with Cell Animator. You can experiment with various frames-per-second speeds, frame-by-frame stepping, reversing or reordering frames. For last minute adjustments, there's a limited paint system included, which handles overscan and HAM modes. You can then dub your animations frame by frame to videotape with the Transport Controller.

Edit 3D lets you create and extrude 3D objects for use with Render 3D. As you create an object you can rotate it on screen, add faceted shading, edit its surface characteristics and create motion sequences. For fine-tuning you can edit in vector mode or in full color with light source parameters. Closely related, Render 3D generates polygonal-based hierarchical objects with multiple light sources, lighting colors, angles and intensity. You can define the types of surfaces that the light is shining on—glass, metal, plastic. In addition to solid objects, you can create transparent objects with reflections, refractions, shadows and texture mapping. With no limitation on object and screen complexity, Render 3D offers digital compositing, as well.

Photon Video: Cell Animator and Transport Controller are priced at $149.95 and $299.95, respectively. Prices for Photon Video: Render 3D and Edit 3D will be determined shortly. For more information on these, and projected modules, contact MicroIllusions, 17408 Chatsworth St., Granada Hills, CA 91344, 818/360-3715. ■

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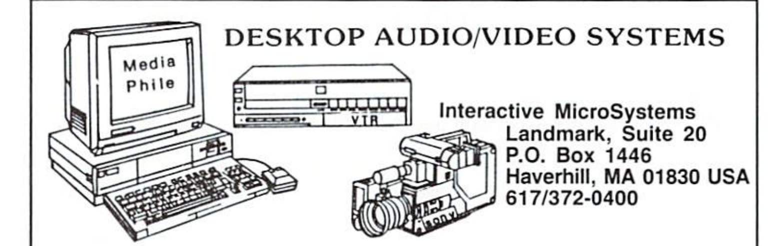


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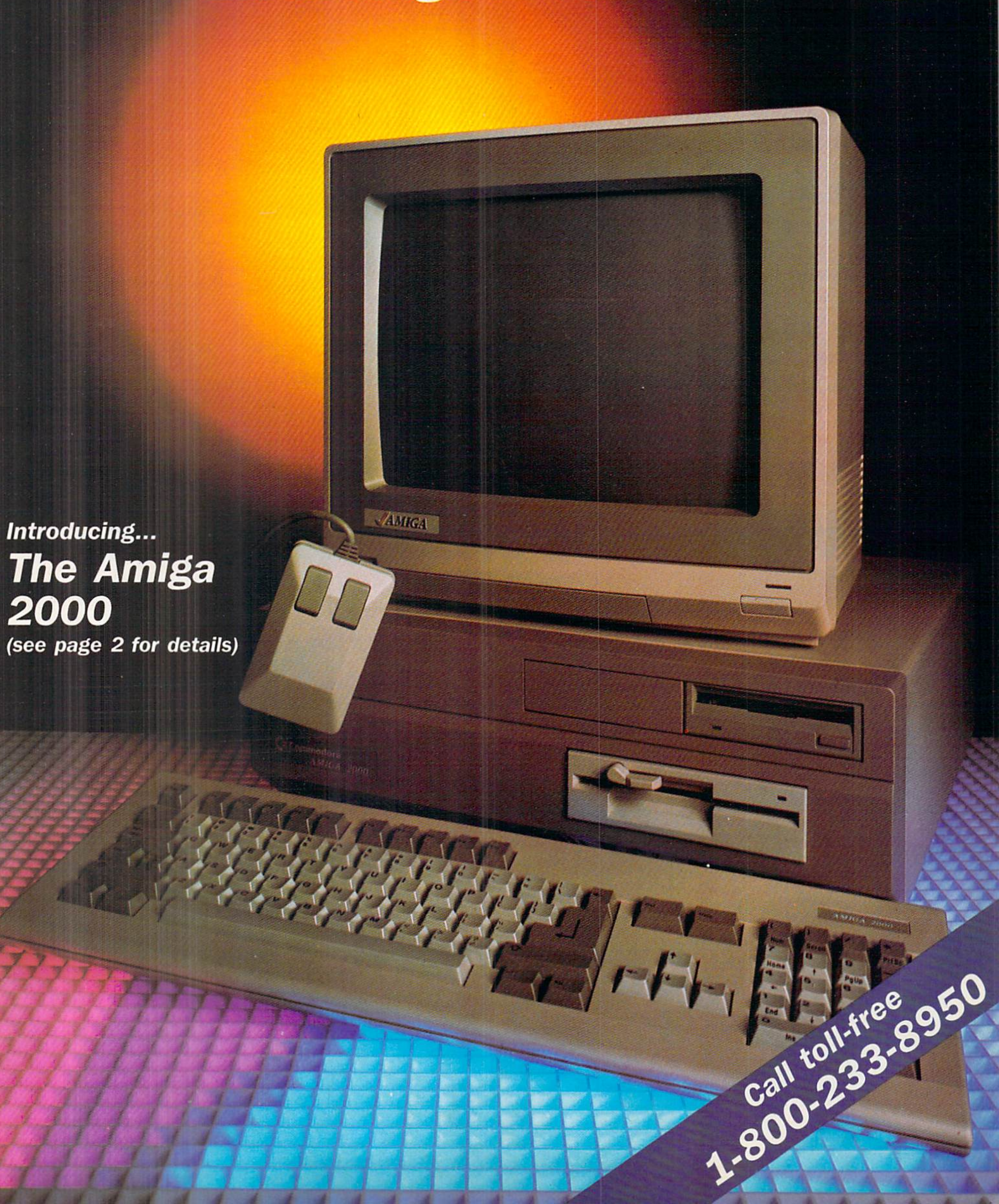
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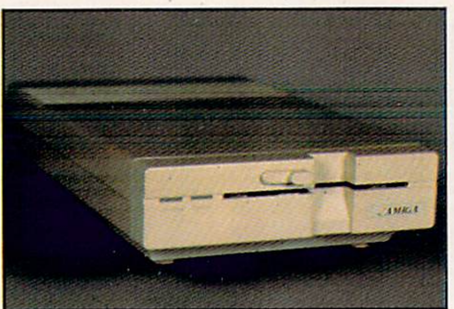
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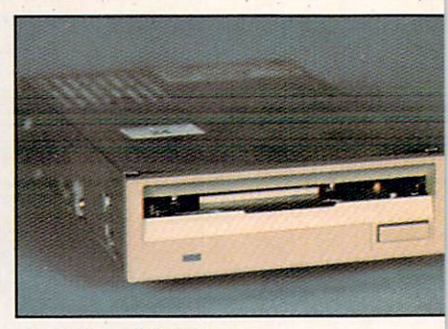
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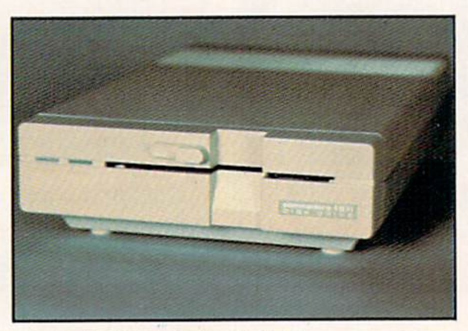
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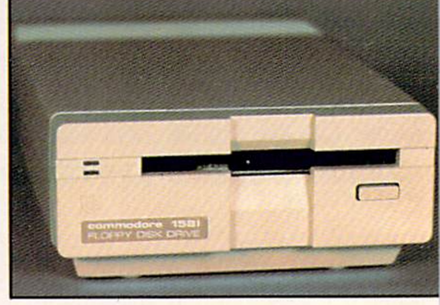
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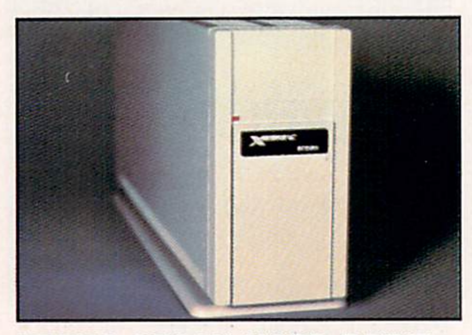
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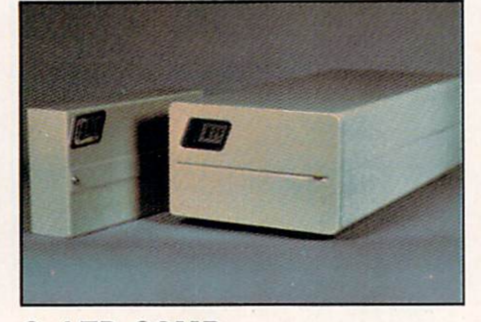
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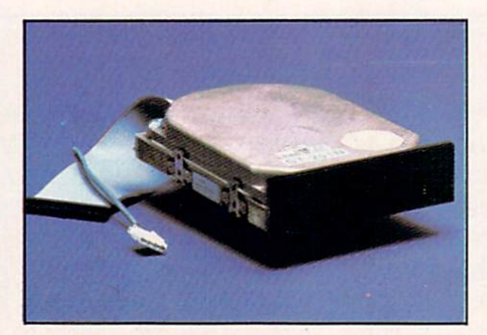
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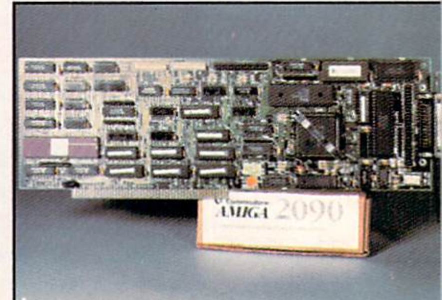
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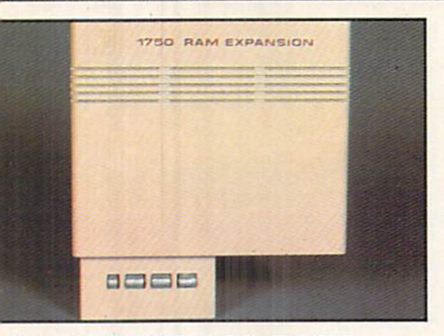
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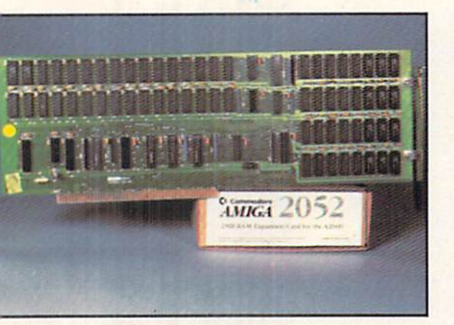




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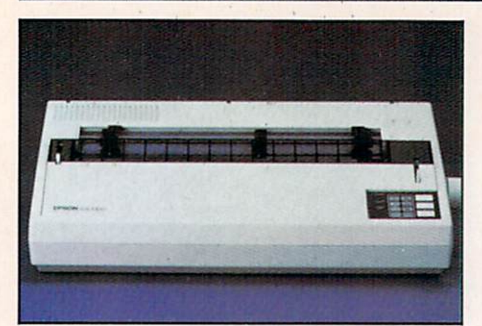
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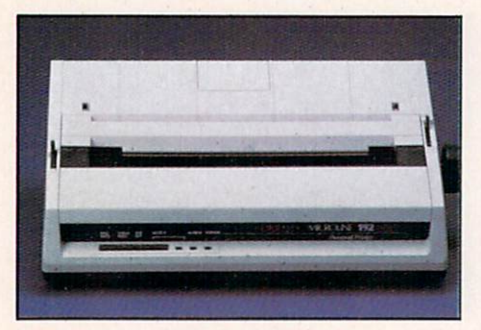
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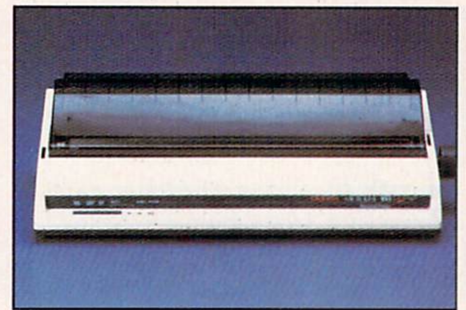
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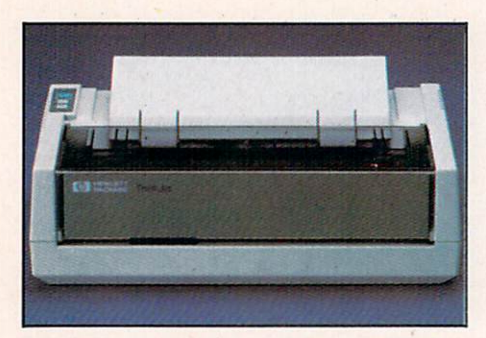
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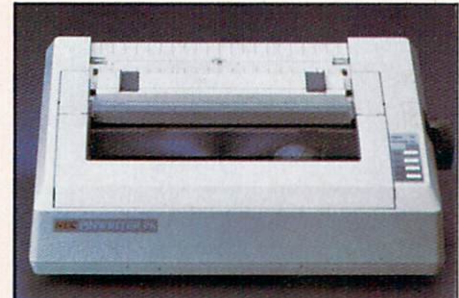
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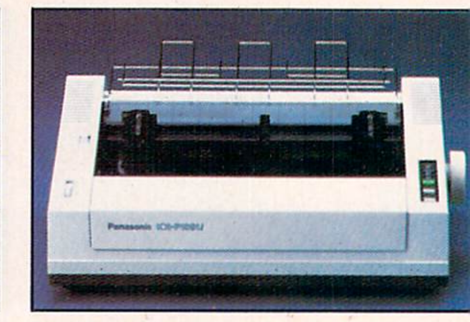
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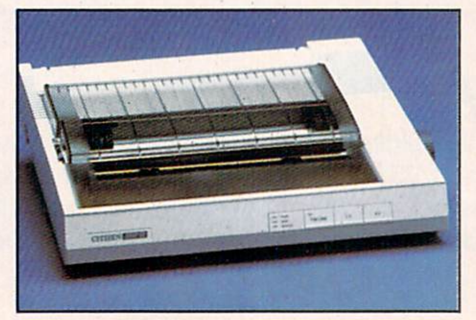
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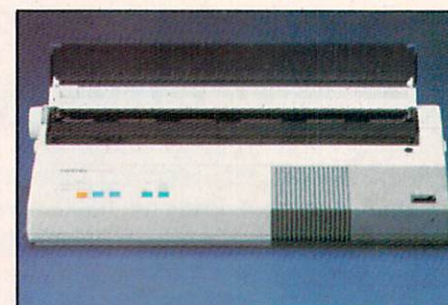
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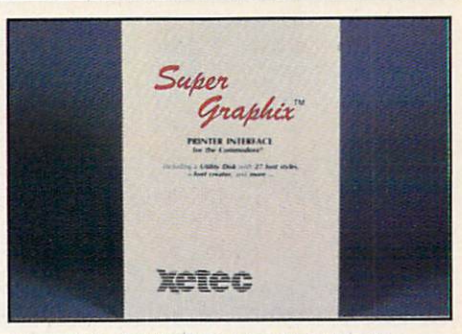
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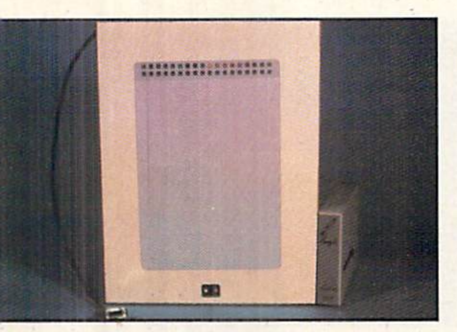
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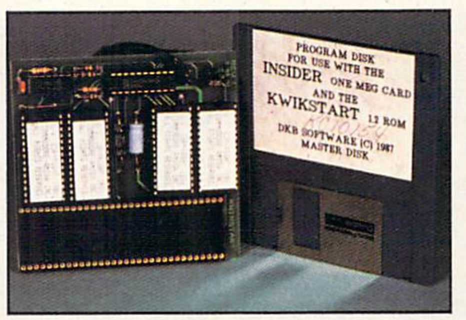
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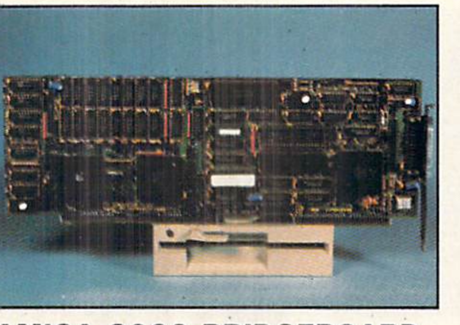
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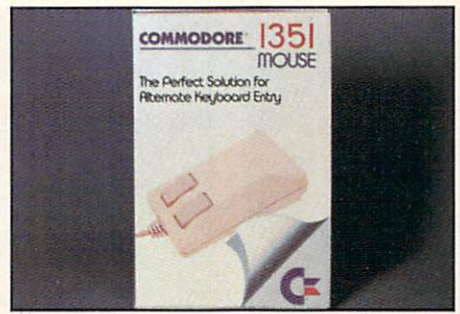
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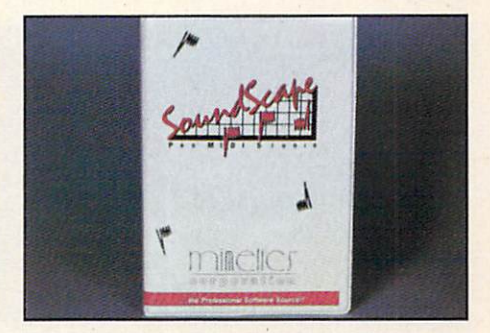
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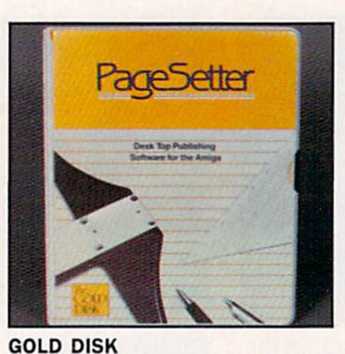
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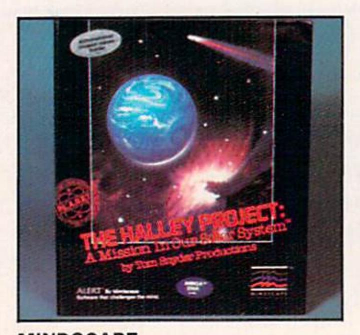
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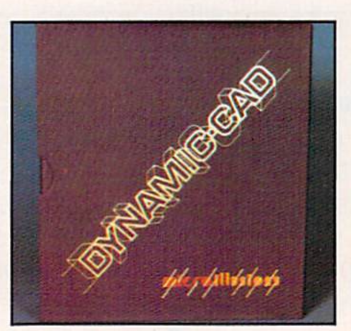
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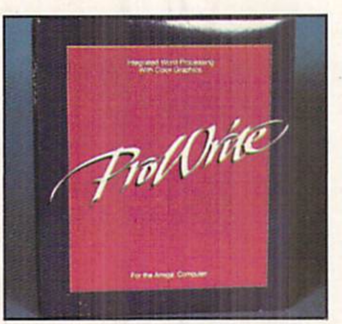
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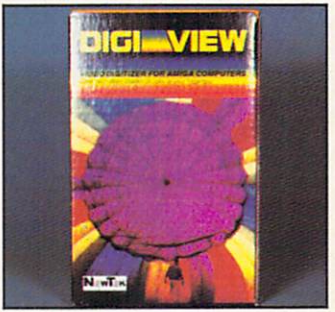
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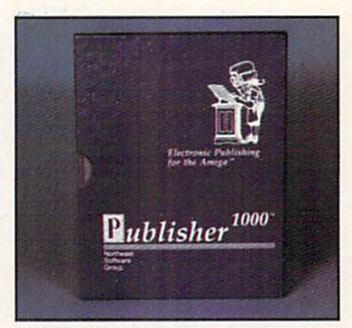
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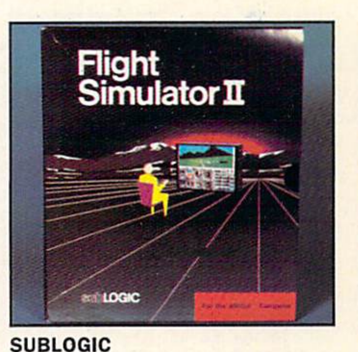
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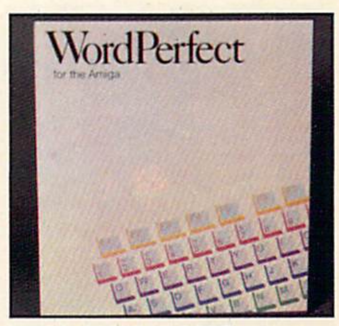
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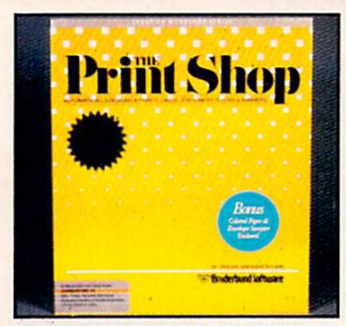
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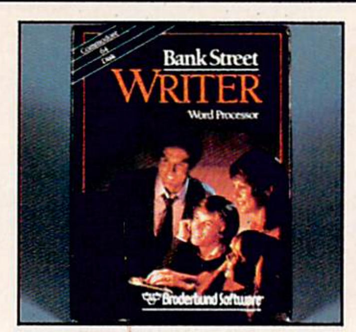
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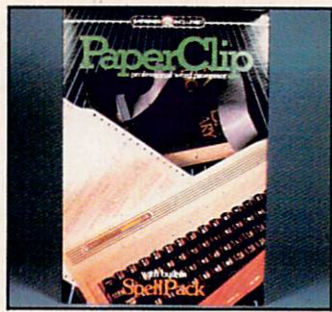
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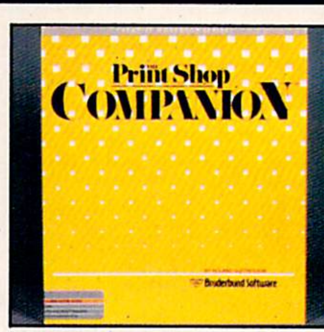
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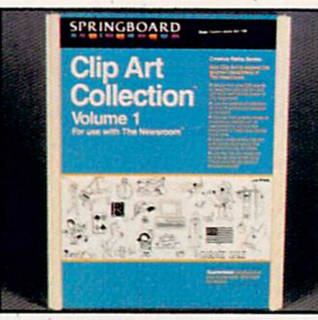
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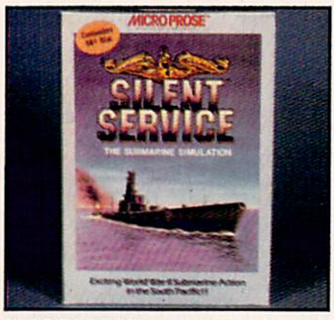


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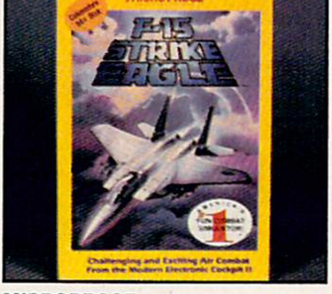


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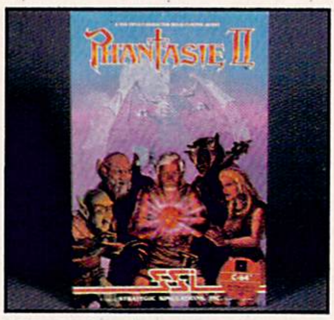
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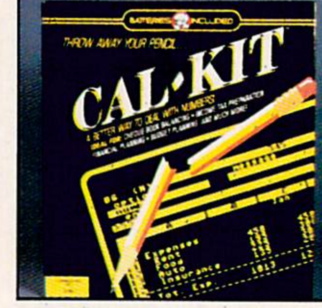
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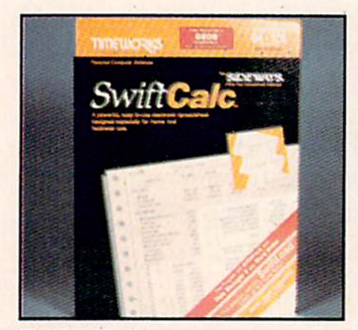
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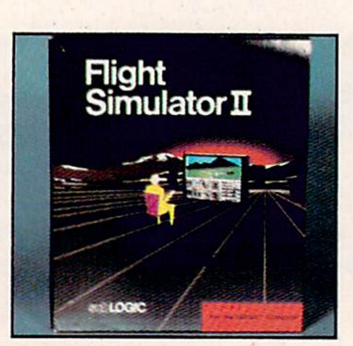
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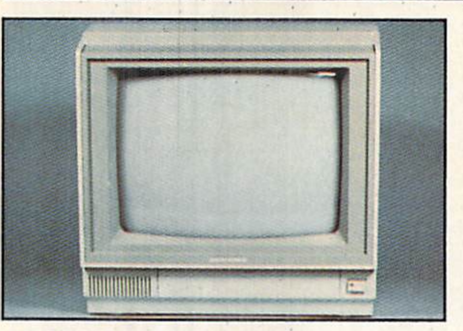
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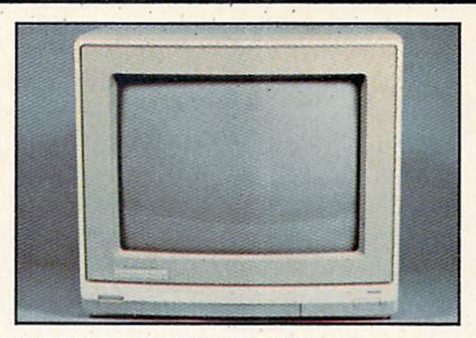
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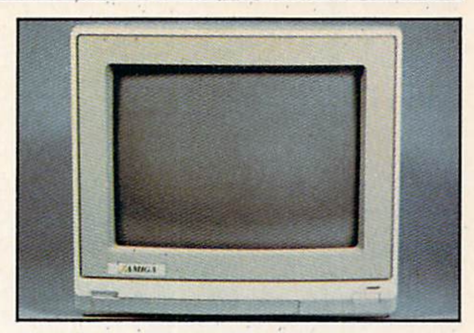
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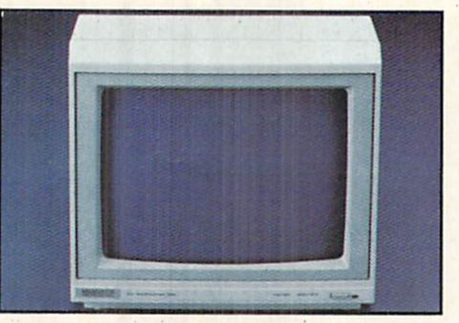
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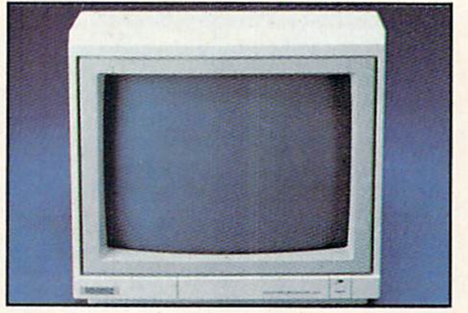
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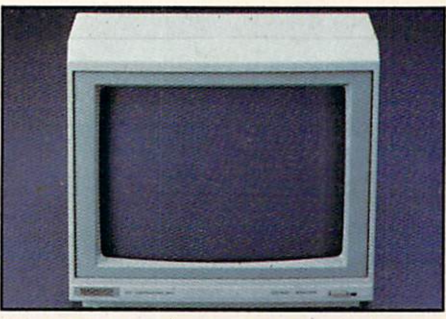
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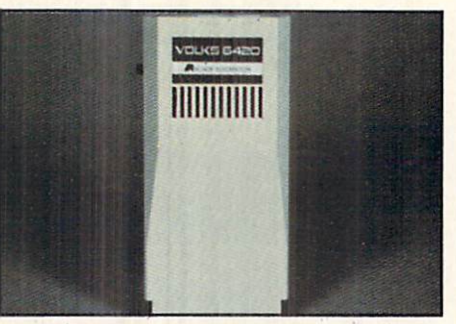
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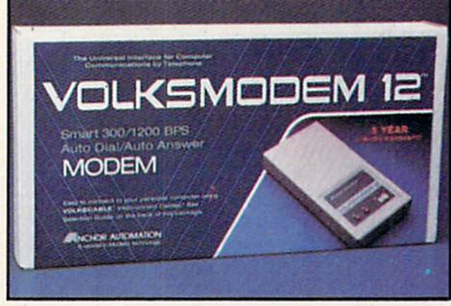
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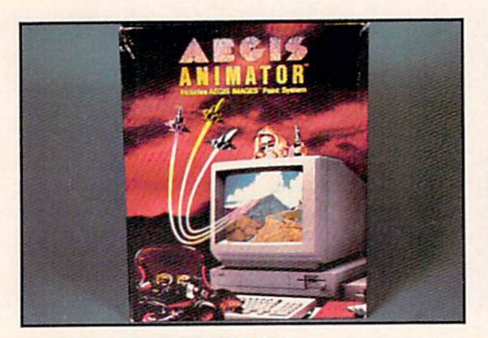


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☐ 1. GREAT! ☐ 5. Fair
☐ 2. Very Good ☐ 6. Poor
☐ 3. Pretty Good ☐ 7. Very Poor
☐ 4. Good ☐ 8. Terrible

B. What will be your next major peripheral purchase?
☐ 1. Monitor ☐ 6. Sidecar
☐ 2. Printer ☐ 7. Gen Lock or Frame Grabber
☐ 3. Modem ☐ 8. Music (Midi, Keyboard, etc.)
☐ 4. Memory Expansion ☐ 9. Other
☐ 5. Disk Drive (hard or floppy)

C. Check all of the endings that best complete this sentence: "Most of AmigaWorld is . . ."
☐ 1. Just Right ☐ 6. Useless
☐ 2. Too Simple ☐ 7. Interesting
☐ 3. Too Complex ☐ 8. Biased
☐ 4. Fluff ☐ 9. Invaluable
☐ 5. Useful

D. What topics would you like to see covered in future issues of AmigaWorld? (Please pick three.)
☐ 1. C Language ☐ 11. How others use the Amiga
☐ 2. Amiga Basic ☐ 12. Buyer's Guides
☐ 3. CLI ☐ 13. Comparative Reviews
☐ 4. Telecommunications ☐ 14. Music
☐ 5. Business Applications ☐ 15. Graphics
☐ 6. IBM Compatibility ☐ 16. Program Listings
☐ 7. Home Applications ☐ 17. New Products
☐ 8. Education ☐ 18. Opinions
☐ 9. Video ☐ 19. Hardware Projects
☐ 10. Science and Engineering ☐ 20. Other

E. What are your favorite things about AmigaWorld? (Please pick all that apply.)
☐ 1. Zeitgeist (Editor's Page) ☐ 6. Tutorials
☐ 2. Repartee (Letters) ☐ 7. Hors d'oeuvres (hints/tips)
☐ 3. Interviews ☐ 8. Advertisements
☐ 4. Help Key (Questions) ☐ 9. Reviews
☐ 5. Features ☐ 10. News
☐ 11. Digital Canvas ☐ 14. Reader Service Card
☐ 12. Articles ☐ 15. Everything
☐ 13. Covers

F. Which of the following categories do you plan to purchase software from in the next 12 months?
☐ 1. Entertainment ☐ 9. Database Management
☐ 2. Word Processing ☐ 10. Financial Management
☐ 3. Communications ☐ 11. Graphics
☐ 4. Spreadsheets ☐ 12. Education
☐ 5. Home Productivity ☐ 13. Music
☐ 6. Programming ☐ 14. Hardware Development
☐ 7. Software Development ☐ 15. Sound/Speech Development
☐ 8. Video/Graphics Creation ☐ 16. CAD/CAM

G. Have you ever purchased a product after receiving the information you've requested from an AmigaWorld reader service card?
☐ 1. Yes ☐ 2. No

H. Where do you buy your computer products? (Please pick one.)
☐ 1. Computer Dealer ☐ 4. Discount/Department Store
☐ 2. Mail Order ☐ 5. Other ________
☐ 3. Manufacturer

I. Do you own an Amiga?
☐ 1. Yes ☐ 2. No

J. Where do you use your Amiga?
☐ 1. Home ☐ 5. Both at home and work
☐ 2. Work ☐ 6. Both at home and school
☐ 3. School ☐ 7. I don't use an Amiga
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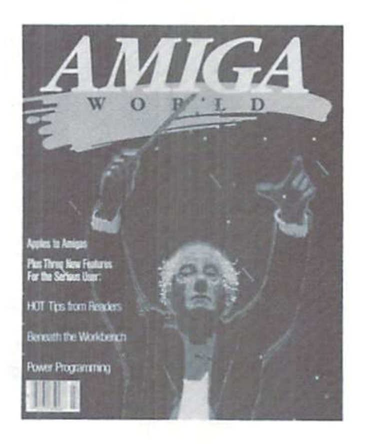
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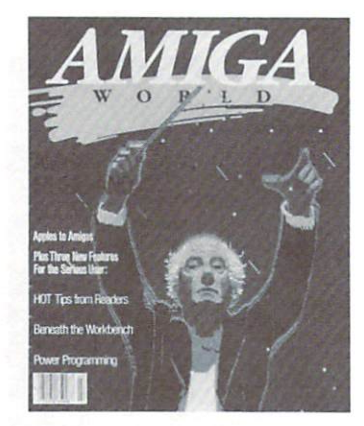




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